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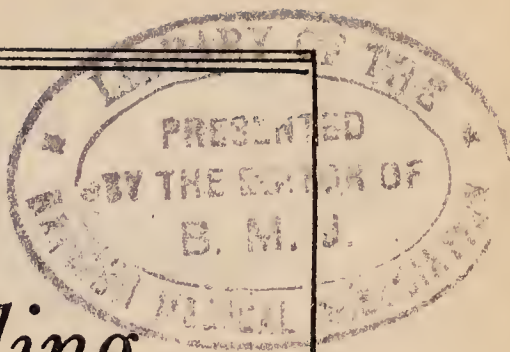
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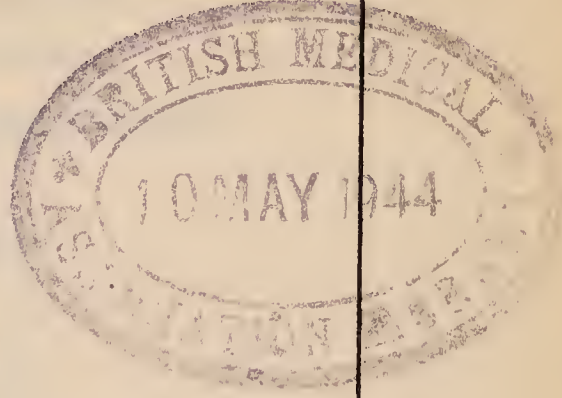
HOLT'S

*Care and Feeding
of Children*

Revised and Enlarged by

L. EMMETT HOLT, JR., M.D.

ASSOCIATE PROFESSOR OF PEDIATRICS, JOHNS HOPKINS
UNIVERSITY; ASSOCIATE PEDIATRICIAN, JOHNS HOPKINS
HOSPITAL, BALTIMORE, MARYLAND



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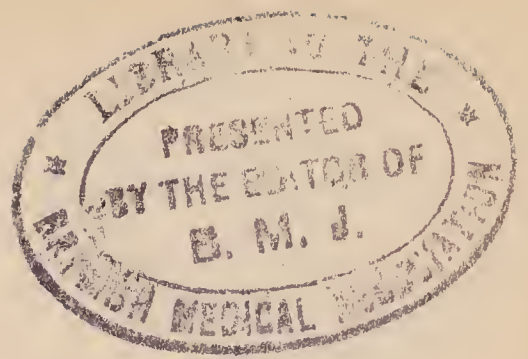
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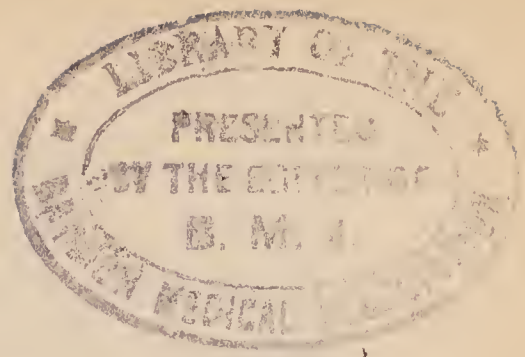
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TO
THE YOUNG MOTHERS OF AMERICA,
TOWARD THE SOLUTION OF WHOSE PROBLEMS
THESE PAGES HAVE BEEN DEVOTED,
THIS WORK
IS RESPECTFULLY DEDICATED



This book is made in full compliance with
Government Directive L 120 limiting the
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PREFACE

In the half century that has elapsed since this manual was first written by my father, many changes have taken place in the methods of feeding and caring for children. Infant feeding has been greatly simplified: a few standard feedings having replaced the complicated system of formulas of a generation ago. The infant thrives on foods once thought highly indigestible, like the banana. He is given solid foods at an age that would have appalled those who cared for his forebears, and attention must now be given to his intake of vitamins, factors which were unknown a few decades ago. His clothing, too, has been simplified. He is freely exposed to the sun instead of being carefully protected from its rays. Gadgets have been devised to aid in caring for him, and new toys for him to play with.

The ailments which beset infants and children are likewise changing. Protective inoculations and public health measures have done much to eliminate many of the infectious diseases, but newer problems have arisen to replace them. Allergy, a term unknown to the previous generation, is to-day a matter of vital

concern in many homes. Smaller families and the restrictions of life in city apartments have brought behavior problems into prominence, and a science of child psychology has developed to meet them.

In this changing world, the need of the mother and nurse for guidance in the care and feeding of children still remains. It has been the author's aim in the present edition, as in its predecessors, to keep its content abreast of the knowledge of the day and to provide a guide that would enable those who care for children to do so in the simplest and safest manner possible. This booklet is not a shopping manual for the mother or prospective mother to acquaint her with all the articles pertaining to children that can be bought; nor is it a medical treatise that will enable her to dispense with the services of a physician. Its purpose is to acquaint her with the fundamental needs of the well child so that she may supply them the more intelligently and to give her such information about the aberrations from health as will enable her to recognize them as such and to obtain medical advice for them.

It is hoped that the mother of to-day will find the present volume of help.

L. EMMETT HOLT, JR.



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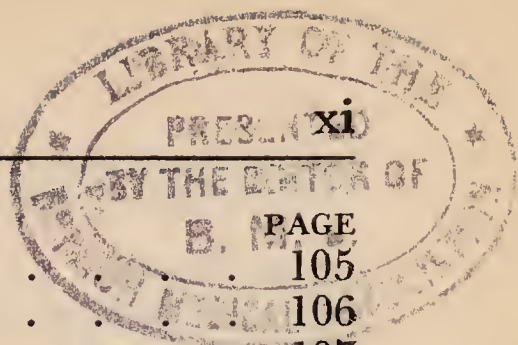
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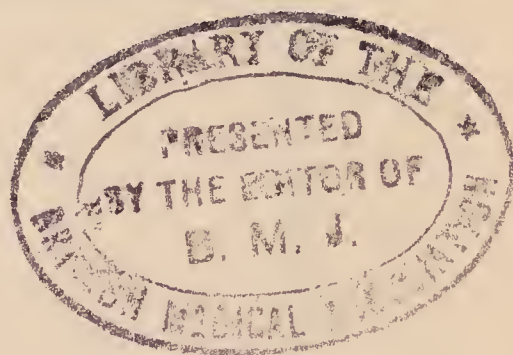
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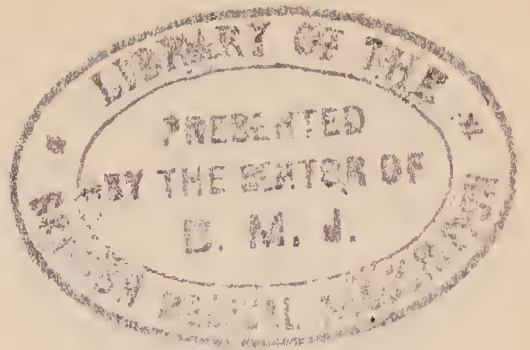
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Part 1

THE CARE OF INFANTS

for ordinary house temperatures and are likely to cause perspiration. Those made of cotton, linen, or rayon are generally to be preferred.

¶ *What changes are to be made in the clothing of infants in cold weather?*

Changes in temperature are usually best met by changes in outer garments. Infants whose nurseries are cold, as may be the case in a country house, may require additional outer clothing such as a sweater and a flannel nightgown. Exceptionally, warmer underclothing may be needed.

¶ *What changes should be made in clothing in hot weather?*

Only the thinnest underclothing should be worn, and if the heat is extreme, the undershirt may be dispensed with entirely, the infant being clothed only in a diaper.

¶ *Do not infants and young children require warmer clothing than adults?*

On the contrary, except for feeble and premature infants, the reverse is true. The normal infant and young child has an active circulation and requires, if anything, less clothing than the adult. The almost invariable mistake made in city homes is that of excessive clothing and too warm rooms. These two things are often responsible for a child's taking cold so readily.

DIAPERS

¶ What material should be used for diapers?

The usual bird's-eye cotton cloth is absorbent and non-irritating and makes an excellent diaper. The disposable paper diapers are a great convenience and involve relatively little expense.

¶ How is a diaper best applied?

There are two ways. The diaper may be folded in the shape of a triangle upon which the baby is laid, the base of the triangle being at his waist-line and the apex between his legs. The three points of the triangle are then gathered together and pinned to the front of the baby's undershirt (see p. 313). A second method is to fold the diaper in an oblong shape, placing the baby's waist over the short end, the length of the diaper being between his legs. This portion is then brought up between his legs, and the corners of the diaper are pinned to the sides of the baby's undershirt. The oblong diaper is more suitable for older infants, for it allows freer movement of the legs.

¶ How should soiled cloth diapers be taken care of?

They should be kept in a tightly covered receptacle until they can be washed.

¶ Should diapers which have been only wet be used a second time without washing?

By no means. Clean diapers, changed as soon as wet or soiled, are of much importance in keeping the skin healthy.

¶ *What are the important things in washing diapers?*

Soiled diapers should not be allowed to dry but should receive a rough washing at once with a toilet brush; they should be soaked in water until a convenient time for washing—at least once a day—when they should be washed in hot suds and boiled at least fifteen minutes. Afterward they should be thoroughly rinsed and ironed without starch or bluing. They should never be used when damp. If the skin shows a tendency to chafe, one may give the diapers a final rinsing in 2 per cent boric acid solution before they are dried and ironed.

¶ *Are rubber pants to be recommended?*

Such articles may at times be a convenience, as when traveling, but their continuous use is to be avoided. They result in less frequent changing of diapers and consequent irritation of the skin; moreover, the pressure of tight rubber bands may impair the circulation.

NURSERY

¶ *What are the essentials in a good nursery?*

It should be a sunny, well-ventilated room with simple furnishings and no unnecessary hangings or upholstered furniture. It should be well screened from flies and other insects. The crib should be in a corner protected from drafts. In winter a pan of water should be kept on the radiator in order to keep the room from becoming too dry.

§ *What temperature should the nursery be kept during the day?*

Preferably between 65° and 68° F., as shown by a thermometer near the infant's crib. The temperature should not be allowed to go above 70° F.

§ *At what temperature during the night?*

During the first few weeks not below 65° F. After one month the temperature may go as low as 55° F., and after six months to 50° or even 45° F.

§ *How often should the nursery be aired?*

At least twice a day. This should be done thoroughly and the child moved meanwhile to another room.

§ *What symptoms are seen in a child who is kept in too hot a room?*

He becomes pale and fretful and may lose his appetite. He perspires a great deal and is likely to be more susceptible to colds and attacks of indigestion.

AIRING

§ *How early may airing indoors be commenced and how long may it be continued?*

Airing in the room may be begun with a strong, healthy child, even in cold weather, when he is one month old, at first for only fifteen or twenty minutes at a time. This period may be gradually lengthened by ten or fifteen minutes each day until it is four or five

hours. This airing may be continued in almost all kinds of weather.

§ *Is there not great danger of a young baby's taking cold when aired in this manner?*

Not if the period is short at first and the baby accustomed to it gradually. Instead of rendering the child liable to take cold, it is a valuable means of preventing colds.

§ *How should such an airing be given?*

The child should be dressed with bonnet and light coat as if for the street and placed in his crib or carriage, which should stand a few feet from the window. All the windows are then thrown wide open, but the doors closed to prevent drafts.

§ *At what age may a child go out of doors?*

In summer, when one week old; in spring and fall, usually at two or three weeks. In winter it depends upon the climate: in New York and New England on a protected porch at two months; in the street usually at about three months, but only on pleasant days, well protected from the wind. In large cities it is often better to place the infant for his airing, until five or six months old, on a roof or balcony or even by an open window in his carriage, to avoid the dust and wind of the street.

§ *What are the best hours for airing out of doors?*

On hot summer days, better morning and late afternoon than midday; in cold weather the best time for

a young infant is between 10 A.M. and 3 P.M., although this depends somewhat upon the climate. In New York and along the North Atlantic coast the early mornings are apt to be damp and the late afternoons raw and cloudy.

§ *On what kind of day should a baby not go out?*

In sharp winds, when the ground is covered with melting snow, and when it is extremely cold. A child under three months old should not usually go out if the thermometer is below the freezing point, nor one under six months old if it is below 20° F.

Exceptions to all the above statements are to be made in the case of very small and feeble infants. Though they should have fresh air and sunlight in abundance, they should be much more carefully protected against cold.

§ *What are the most important things to be attended to when the child is out in his carriage?*

To see that the wind never blows in his face and that his feet are properly covered and warm.

§ *What are the effects produced in infants by fresh air and sunshine?*

The appetite is improved, the digestion is better, the cheeks become red, and all signs of health are seen.

§ *Are there any objections to an infant's sleeping out of doors?*

There are no real objections. It is not true that infants take cold more easily when asleep than awake, while

it is almost invariably the case that those who sleep out of doors are stronger children and less prone to take cold than others.

SUNBATHS

¶ *Are sunbaths desirable for infants?*

Direct sunlight—not that which passes through ordinary window glass—contains ultraviolet rays which help to prevent rickets and may have other advantages as well. All healthy infants should therefore be given direct sunbaths when this is possible.

¶ *When should a sunbath be given?*

In northern climates the winter sunshine contains so little of the ultraviolet rays that it is scarcely worth while to give sunbaths; they may, however, be given in the spring, summer, or fall. In the South the sunshine is valuable at all times of the year. The most effective sunshine is in the middle of the day.

¶ *How may a sunbath be given?*

One should begin gradually. The baby is undressed completely and exposed before an open window, or out of doors if temperature conditions permit, for one minute, the next day for two minutes, and so forth until a sunbath of half an hour is given. The sunbath should be given in a spot protected from the wind.

¶ *Is not direct sunlight injurious to the baby's eyes?*

There is no danger to a baby's eyes or skin when exposure to the sun is commenced gradually.

§ *Will not a baby take cold when so exposed?*

On the contrary, sunbaths may help him to resist such infections.

§ *In the absence of good sunlight, is a sunlamp essential?*

By no means. The great majority of infants require no such treatment. Moreover, many sunlamps sold produce almost no ultraviolet radiation. A sunlamp should not be purchased or used except on the advice of a physician.

BATHING

§ *How frequently should an infant be bathed?*

A daily bath is of great importance in keeping the skin healthy.

§ *At what age may a child be given a full tub bath?*

Usually when ten days old; it should not be given before the cord has come off.

§ *How should the bath be given?*

It should not be given sooner than one hour after feeding. The room should be warm; the head and face should first be washed and dried; then the body should be soaped and the infant placed in the tub with his body well supported by the hand of the nurse. The bath should be given quickly, and the body dried rapidly with a soft towel, but with very little rubbing. A folding rubber bathtub is a great convenience in bathing a baby.

¶ *At what temperature should the bath be given?*

For the first few weeks at 100° F.; later, during early infancy, at 98° F.; after six months, at 95° F.; during the second year, from 85° to 90° F.

¶ *With what should the bath be given?*

Soft wash-cloths are useful for bathing the body, limbs and scalp. There should be a wash-cloth for the face and another for the buttocks. Wads of cotton that may be disposed of after use make excellent wash-cloths for a small baby.

¶ *What are the objections to bath sponges?*

When used frequently, they become very dirty and are likely to cause infection of the eyes, mouth, or genital organs.

¶ *Under what circumstances should the daily tub bath be omitted?*

In the case of very feeble infants on account of the exposure and fatigue, and in all forms of acute illness except by direction of the physician. In eczema and many other forms of skin disease much harm is often done by bathing with soap and water, or even with water alone.

GENITAL ORGANS

¶ *How should the genital organs of a male child be cleansed?*

In infancy and early childhood the foreskin should be pushed completely back at least twice a week;

this is done most conveniently when the child is in his bath. The parts thus exposed are washed gently with absorbent cotton and water; afterwards the foreskin is drawn forward again.

If the foreskin is tightly adherent and can not readily be pushed back, the physician's attention should be called to it. The nurse or mother should not attempt forcible stretching.

§ *When is circumcision advisable?*

Usually when the foreskin is very long and so tight that it can not be pushed back without force; always, when this condition is accompanied by evidences of local irritation or difficulty in passing water.

§ *How should the genital organs of a female child be cleansed?*

Best with fresh absorbent cotton and tepid water, or a 2% solution of boric acid (one teaspoonful to eight ounces). This should be done carefully at least once a day. If any discharge is present, the physician's attention should be called to it. Great care is necessary at all times to prevent infection which often arises from soiled diapers.

EYES

§ *Should the eyes of a little baby be cleansed regularly?*

Under normal conditions it is not advisable to do this.

¶ *If pus appears in the eyes, what should be done?*

They should be cleansed every hour with a lukewarm solution of boric acid—2 per cent—applied on a piece of absorbent cotton. If the lids stick together, a little vaseline from a tube should be rubbed upon them at night. If the trouble is slight, this treatment will control it; if it is severe, a physician should be called immediately, as delay may result in loss of eyesight.

MOUTH

¶ *Is it necessary to clean an infant's mouth?*

Not as a rule. The delicate mucous membranes are often injured by injudicious attempts at cleansing.

¶ *What is thrush?*

It appears on the lips and inside the cheeks like little white threads or flakes. In bad cases it may cover the tongue and the whole of the inside of the mouth.

¶ *If thrush appears, what should be done?*

One should pay greater attention to the cleanliness of the nipples (see p. 53 and 97). Dirty nipples are a common cause of thrush. The areas in the mouth should be touched twice a day with a 1 per cent solution of gentian violet. A convenient swab for applying this can be made by twisting a bit of absorbent cotton upon a toothpick.

Thrush is not a serious condition. Even without any special treatment it usually disappears in two or three weeks.

SKIN

¶ *How should an infant's skin be cared for to prevent chafing?*

First, not too much nor too strong soap; second, careful rinsing of the body; third, no vigorous rubbing, either during or after the bath; fourth, protection of the deep folds of the skin—under the arms, in the groins, behind the ears, about the neck, etc. This is of special importance in very fat infants. The skin here should be thoroughly dried after bathing and a powder like borated talcum used, or, even better, the folds smeared with a little mineral oil.

¶ *If the skin is very sensitive and chafing easily produced, what should be done?*

One should attempt to harden the skin by salt baths or by alcohol rubs.

¶ *How should a salt bath be prepared?*

Half a teacupful of common salt should be used to each two gallons of water.

¶ *How should an alcohol rub be given?*

Rubbing alcohol should be applied to the body once a day. This should not be done if open sores are present, and one should be careful not to bring the alcohol in contact with the delicate mucous membranes of the eyes, nose, and mouth, or the genital organs.

§ *How should the buttocks be cared for?*

This is the most common place for chafing, as the parts are so frequently wet and soiled; hence the utmost pains should be taken that all diapers be removed as soon as they are wet or soiled, and the parts kept scrupulously clean and powdered or oiled. After each movement the buttocks should be washed with water or oil. In female infants it is of particular importance to keep the genitals clean, washing them from before backwards.

§ *If the parts have become chafed, what should be done?*

Soap and water should not be applied to the chafed areas. The parts may be cleansed with olive oil or mineral oil and a little absorbent cotton. An excellent plan is to expose the child with diaper removed for several hours a day. This may be done in the direct sunlight, if care is taken to prevent sunburn. Careful watching is of course necessary to prevent soiling. The parts should be well powdered before the diaper is replaced. A helpful procedure to prevent irritation from urine is to rinse the diapers in a 2 per cent solution of boric acid after they have been washed and before they are dried and ironed.

§ *What is prickly heat, and how is it produced?*

It consists of fine red pimples and is usually caused by excessive perspiration and the irritation of woolen underclothing.

¶ *How should it be treated?*

Lighter clothing should be used; cotton or linen should be put next to the skin; the entire body should be powdered frequently.

NAILS

¶ *Is the care of the nails important?*

The fingernails should be kept well trimmed, with no sharp edges protruding, for babies with slight irritation of the skin are likely to scratch themselves and produce infection of the skin. Toe nails require less attention; they should be cut squarely across.

SCALP

¶ *How often should a baby's scalp be washed?*

Two or three times a week with soap and water is ordinarily quite sufficient. If there is a tendency to crust formation, soap and water are best omitted altogether, the crust being softened with oil. If this does not clear up the condition, the physician's attention should be called to it.

THE BOWELS

¶ *How may a child be trained to be regular in the action of the bowels?*

By endeavoring to have them move at exactly the same time every day.

¶ *At what age may an infant be trained in this way?*

Usually by the third or fourth month if training is begun early.

¶ *What is the best method of training?*

A small chamber, about the size of a pint bowl, is placed between the nurse's knees, and upon this the infant is held, his back being against the nurse's chest and his body firmly supported. This should be done twice a day, after the morning and afternoon feedings, and always at the same hour. At first there may be necessary some local irritation, like that produced by tickling the anus or introducing just inside the rectum a small cone of oiled paper or a piece of soap, as a suggestion of the purpose for which the baby is placed upon the chamber; but in a surprisingly short time the position is all that is required. With many infants, after a few weeks, the bowels will move as soon as the infant is placed on the chamber.

¶ *What advantage has such training?*

The regular habit formed in infancy makes regularity in childhood much easier. It also saves the nurse much trouble and labor.

¶ *What is the best time for the movement?*

In most cases immediately after the first feeding in the morning. If the bowels do not move then, an effort should be made after the next feeding.

¶ *How many movements daily should an infant have during the first few weeks of life?*

Usually two or three a day for the first week, and then one or two a day.

¶ *How many after a child is a month old?*

A healthy child should have at least one movement each day; many have two and some more than two; but it is the character of the stools rather than their number which is to be taken as the evidence of perfect digestion.

¶ *What is the appearance of a healthy movement of a nursing infant?*

It is soft, almost loose, but smooth, containing no lumps. It has a yellow color, often with a greenish tinge, with an aromatic but not unpleasant odor.

¶ *What is the appearance of a normal movement of an infant who is taking modified cow's milk?*

It is paler in color, and smooth but firmer in consistency, often slightly constipated; the odor is usually somewhat foul, especially when barley or other cereals are added.

¶ *What can be done to control chronic constipation?*

This should be controlled by making changes in the food, rather than by the use of suppositories, enemas or laxatives. The changes that may be made in the food are discussed elsewhere (see p. 112).

¶ *When are the stools dark brown or black?*

While taking bismuth, iron, and sometimes when taking much meat or beef juice; also while taking many of the prepared foods. They may be dark brown or black from blood. This last is a condition which may indicate serious illness.

¶ *What is the meaning of fresh red blood in the stools?*

Small streaks of blood are sometimes found in the stools of infants who are very constipated. Provided the child is otherwise well, this need cause no alarm. In dysentery, a severe form of diarrhea, some blood and mucus are regularly present; the stools contain fecal matter as well, and the child has fever and shows other evidences of illness.

¶ *What should be done when the stools contain blood and mucus but no fecal matter?*

This is a rare condition but one which must be recognized at once. It often indicates an obstruction of the intestine. There is pain and nearly always vomiting. A physician or surgeon should be summoned without delay, for an immediate operation is usually necessary.

SLEEP

¶ *Should a child sleep in the same bed with his mother or nurse?*

Never, if this can possibly be avoided. If the infant sleeps with the mother, there is always the temptation

to frequent nursing, which is injurious to both mother and child. Older children also should, if possible, have separate beds; many contagious diseases and bad habits are contracted by children sleeping together.

¶ *How should an infant's bed be prepared?*

The mattress should be firm but soft; it may be covered with oilcloth or a thin rubber sheet, firmly held in place by straps. This should be covered by a bed-pad. The baby's covering should not be excessive; it should not be so tight as to prevent the infant from moving his limbs freely. A pillow is not necessary. A sleeping-bag is preferable to blankets for keeping a baby warm on cold nights.

¶ *How much sleep is natural for a newborn baby?*

A baby with a good digestion and proper food will usually sleep at this period about nine-tenths of the time.

¶ *How much should a baby sleep at six months?*

About two-thirds of the time.

¶ *At what age may an infant go all night without feeding?*

After three months a healthy child should not be fed or nursed between 10 P.M. and 6 A.M.

Some children at six or seven months habitually go from 6 P.M. to 6 A.M. without feeding, and thrive well.

At fifteen months nearly all children easily go from 6 P.M. to 6 A.M. without feeding.

¶ *How should a baby be put to sleep?*

The room should be darkened and quiet, the child's hunger satisfied, and the child made generally comfortable and laid in his crib.

¶ *Is rocking necessary?*

By no means. It is a habit easily acquired but hard to break, and a very useless and sometimes injurious one. The same may be said for sucking a rubber nipple, or "pacifier," and all other devices for putting children to sleep.

¶ *What are the principal causes of disturbed sleep?*

As quiet, peaceful sleep is a sign of perfect health, disturbances of sleep may be produced by almost anything which is wrong with the child.

1. Habitual disturbance of sleep in infants is most frequently associated with the food or feeding. It may be from the discomfort of chronic indigestion due to improper food. In bottle-fed infants it is often the result of overfeeding; in those who are nursed it is often due to hunger. A common cause is frequent night feeding; an infant who is fed three or four times during the night is almost invariably a bad sleeper.

2. Disturbed sleep or sleeplessness may be due to causes purely nervous. Such are bad habits acquired by faulty training, as when the nursery is lighted and the child taken from his crib whenever he wakes or cries, or when some of the contrivances for inducing

sleep have been used. Any excitement or romping play just before bedtime, listening to the radio and fears aroused by pictures or stories, are frequent causes. Children who inherit from their parents a nervous constitution are especially likely to suffer thus.

3. There may be physical discomfort from cold feet, insufficient or too much clothing, or want of fresh air in the sleeping room.

4. Interference with breathing due to obstruction from large tonsils or adenoids. These often cause great restlessness and lead a child to assume many different postures during sleep, sometimes lying upon the face or upon the hands and knees.

5. Chronic pains or frequently recurring night pains may be causes of disordered sleep, when a child wakes with a sudden sharp cry. In infants this may be due to scurvy, sometimes to syphilis. In older children it may be the earliest symptom of disease of the hip or spine.

6. Sleeplessness and disturbed sleep are frequent whenever the general condition falls much below a healthy standard; *e. g.*, in infants who are not thriving and in children suffering from marked anemia.

¶ *How are children who sleep too little, or whose sleep is constantly disturbed, to be treated?*

Never by the use of soothing syrups or other medicines. Successful treatment consists in the discovery and removal of the cause.

¶ *How much sleep should be allowed for older children?*

From 4 to 6 years 12 hours

From 7 to 10 years 11 hours

From 11 to 14 years 10 hours

From 14 to 16 years 9 hours

Besides this, up to six years a child should have a nap during the day of three-quarters of an hour to one hour. Regularity and habit have much to do with securing the amount of sleep which children need.

¶ *Do children ever sleep too much?*

It is doubtful if healthy children ever do. Excessive sleep is an important symptom of some diseases of the brain. Otherwise it seldom if ever occurs unless soothing syrups or other drugs have been given.

EXERCISE

¶ *Is exercise important for infants?*

It is as necessary for them as for older children.

¶ *How is it obtained?*

A young baby gets his exercise by screaming, waving his arms, kicking, etc. The clothing should not be so tight as to make these movements impossible. At least twice a day the infant should be allowed the free use of his limbs for fifteen or twenty minutes by permitting him to lie upon a bed in a warm room, with all clothing except the shirt and diaper removed.

Later, the baby may be put upon a thick blanket or quilt laid upon the floor, and be allowed to tumble about at will. A nursery pen two feet high with a mattress, is an excellent device and makes a convenient box stall for the young animal, where he can learn to use both his arms and his legs without the danger of injury. Only by exercise such as this do the muscles have an opportunity to develop properly.

¶ *Is it not desirable to give systematic exercises to infants?*

By no means. The complicated systems devised for exercising various sets of muscles are totally unnecessary. When allowed the free use of his limbs an infant will take care of his own exercise.

¶ *What are the important things to be considered in the exercise of older children?*

That it be in the open air whenever possible.

That the clothing for active exercise be light.

That the amount and character of exercise be carefully regulated for children who are below par—underweight, highly nervous or delicate.

Competitive exercises should be permitted only after a medical examination to make sure that no injury is done to the heart.

CRYING

¶ *When is crying useful?*

In the newly-born infant the cry expands the lungs, and it is necessary that it should be repeated for a

few minutes every day in order to keep them well expanded.

§ *How much crying is normal for a very young baby?*
From fifteen to thirty minutes a day is not too much.

§ *What is the nature of this cry?*
It is loud and strong. Infants get red in the face with it; in fact, it is a scream. This is necessary for health. It is the baby's exercise.

§ *When is crying abnormal?*
When it is too long or too frequent.

§ *What are the main causes of such crying?*
Pain, illness, hunger, temper, and habit.

§ *How can one tell that a child is crying from pain or illness?*

A search may reveal some external cause of pain, such as an open safety-pin. There may be fever or prostration or some other evidence of illness. The cry of a sick child is rarely strong: often it is a moaning or a worrying cry, sometimes only a feeble whine.

§ *How can one distinguish the cry of hunger?*
By the fact that it ceases when food is given.

§ *What is the cry of indulgence or from habit?*
This is often heard even in very young infants, who cry to be rocked, to be carried about, sometimes for

a light in the room, for a pacifier to suck, or for the continuance of any other bad habit which has been acquired.

¶ *What is the most certain way of causing a child to develop the crying habit?*

By giving him everything he cries for. This will soon do it even in one with a most amiable disposition.

¶ *How is such a habit to be broken?*

By never giving a child what he cries for.

¶ *How can we be sure that a child is crying to be indulged?*

If he stops immediately when he gets what he wants, and cries when this is withdrawn or withheld.

¶ *What should be done if a baby cries at night?*

One should see that the child is comfortable—the clothing smooth under the body and not too tight, the hands and feet warm, and the diaper not wet or soiled. If all these matters are properly adjusted and the child is simply crying to be taken up, he should not be further interfered with. If the night cry is habitual, some other cause should be sought.

¶ *How is a baby to be managed that cries from temper, from habit, or to be indulged?*

He should simply be allowed to “cry it out.” This may require an hour, and, in extreme cases, two or three hours. A second struggle will seldom last more

than ten or fifteen minutes, and a third will rarely be necessary. Such discipline is not to be carried out unless one is sure as to the cause of the habitual crying.

§ *Is it likely that rupture will be caused from crying?*
Not in healthy young infants.

RUPTURE

§ *What is a rupture?*

The usual form is a protrusion of part of the intestine from the abdominal cavity; the most common place in infants is at the navel; in older children in the groin.

§ *How is rupture recognized?*

A small lump, varying in size from a small fingertip to a walnut, appears in one of the places mentioned, usually after coughing, crying, or straining. It disappears or can easily be pushed back when the child is lying down.

§ *How is rupture at the navel in infancy prevented?*

By giving the abdomen more support in the early days of life. It is for this reason that the snug abdominal band is applied.

§ *What should be done if rupture at the navel has occurred in an infant?*

For the usual small rupture, which is seldom more than half an inch in diameter, the best support is a

piece of adhesive plaster. This should be $1\frac{1}{2}$ inches wide and 7 or 8 inches long. It should be long enough to extend some distance onto the infant's back on both sides. Before applying the adhesive, the rupture should be pushed back and two folds of skin—one from each side—should be brought together over it, burying it completely from view. When the abdomen is strapped in this manner the rupture will remain buried for about a week, but the adhesive will gradually loosen and eventually the rupture will be seen to protrude beneath its surface. A new piece of adhesive should then be applied. One should not attempt to remove the adhesive during the bath. It may be removed at any time with kerosene or a small amount of cleaning fluid.

§ *How long should the adhesive plaster be worn?*

Until the rupture ceases to protrude, usually a matter of months. When the rupture is small, a shorter time may be sufficient. Before reapplying, the skin should be carefully cleaned and powdered. The plaster should not be applied exactly in the same place each time, sometimes transversely across the abdomen, sometimes crossing the navel obliquely. In this way soreness of the skin may be prevented.

§ *What should be done if the skin becomes chafed under the adhesive plaster?*

If the plaster can not be applied at such an angle as to avoid the chafed area one may powder the chafed

area and cover it with a layer of cotton before strapping the abdomen. If the irritation is not extensive this will probably permit it to heal. If not, it may be advisable to remove the strapping temporarily.

§ *What should be done for a rupture in the groin, or a large rupture at the navel?*

These are much more serious and should not be neglected. They will usually require a truss, and sometimes a surgical operation. The child should be placed under the care of a physician.

LIFTING CHILDREN

§ *How should a young baby be lifted from his bed?*

The right hand should grasp the thighs or the feet, and the left hand should be slipped beneath the infant's body to his head. He is then raised upon the left arm.

§ *What is the advantage of this?*

The entire spine is supported, and no undue pressure is made upon the chest or abdomen, as often happens if the baby is grasped around the body or under the arms.

§ *How should a child old enough to run about be lifted?*

Always by placing the hands under the child's arms, and never by the wrists.

§ *What injury may be done in lifting the child by the wrists or hands?*

Often serious injury is done to the elbow or shoulder joints.

KISSING

§ *Are there any valid objections to kissing infants?*

There are many serious objections. Tuberculosis, diphtheria, syphilis, and many other grave diseases may be communicated in this way. The kissing of infants upon the mouth by other children, by nurses, or by people generally should under no circumstances be permitted. Infants should be kissed, if at all, upon the cheek or forehead, but the less even of this the better.

PLAYING WITH BABIES

§ *At what age may playing with babies be begun?*

Babies under five months should never be played with; and the less of it at any time the better for the infant.

§ *What harm is done by playing with very young babies?*

Such procedures as tickling a baby to make him laugh or bouncing him up and down are likely to make him restless and irritable. He may sleep badly, suffer from indigestion, and cease gaining in weight.

¶ *Should a young baby be left alone entirely?*

This is not necessary. There is no objection to his being taken up and held in the mother's arms in different positions. This should, however, not be done after meals or before going to sleep.

¶ *When may older children be played with?*

The best time is in the morning or after the midday nap; but never just before bedtime.

¶ *What are the important considerations in the play of older children?*

As a child becomes old enough to respond to people, it is proper that he should have a short period of gentle play, once a day, with one or another member of the family, provided they are free from colds and other infections. Forms of play which tend to excite the child should, however, always be avoided, for children do best in quiet peaceful surroundings.

Older infants and young children should be taught to play by themselves. Otherwise they are likely to develop the habit of depending on others for attention and entertainment.

TOYS

¶ *What points should guide one in selecting toys and playthings for young children?*

The instinct in a baby to put everything into the mouth is so strong that nothing should be given that

can not be safely treated in this way. Hence one should choose toys which are smooth, those which can be easily washed, and those which can not be swallowed.

One should avoid (1) toys with sharp points or corners; (2) those with loose parts that might be detached or broken off and swallowed; (3) small objects which might be swallowed or pushed into the nose or ear, such as coins, marbles, and safety-pins, also beads and buttons unless strung upon a stout cord; (4) painted toys (many children have been poisoned by lead paint which they have chewed from toys); (5) those covered with hair or wool. Infants have often been severely injured by swallowing what they have pulled off from their small toy animals.

The most suitable toys for infants are a rattle, a rubber doll with whistle attached, or spools on a string. Only one toy should be given at a time. It should be attached to the crib by a short string or tape; otherwise the infant is likely to develop the habit of throwing it on the floor just to see it picked up for him.

§ *What points are to be considered in selecting the toys and playthings of a child over two years old?*

It should be remembered that not only are toys a source of amusement, but that they have an educational value as well. Those are therefore to be preferred, the use of which develops the child's imagination, and with which he can be taught to amuse himself. For boys nothing can surpass blocks, Meccano

sets, toy soldiers, balls, engines and trains of cars; and for girls, dolls and housekeeping sets. The complicated mechanical toys now so much in vogue usually give only a momentary pleasure, and as soon as the wonder at their operation has worn off, they have lost interest for the child except that which he gets in breaking them to see what makes them go.

§ *What important things can be taught children with their toys and how may this be done?*

The imagination may be developed, and children may be trained to habits of neatness, order, and regularity, and to concentration of mind.

To this end toys should be kept in an orderly way upon a shelf in the nursery or in a closet, never piled in a miscellaneous heap in the corner of the room. Children should select their toys and play with one thing at a time, which they should be taught to put away in place before another is given. They should never be allowed to have a dozen things strewn about the room at one time, with none of which they are occupied.

TRAVELING

§ *What are the most important considerations in traveling with a baby?*

To avoid excitement and fatigue as far as possible, to avoid contact with strangers, and to carry one's own independent food supply.

The baby's regular daily routine of feeding and sleeping should be interfered with as little as possible.

For train travel a private room is highly desirable. On no account should strangers be allowed to handle the baby.

The use of disposable paper diapers will prove a great convenience. Rubber pants or an outer diaper of rubberized cloth may be needed at times. A large market basket with a handle is useful for carrying the baby.

For the artificially fed infant, feedings made from evaporated milk as needed will simplify the problem. A sufficient number of sterilized feeding bottles and rubber nipples should be taken along. The day's supply of evaporated milk may be kept cold in a vacuum bottle. A sterno stove or electric heater may be used to warm feedings. For infants on solid foods the use of canned puréed vegetables are a convenience. If the infant is not accustomed to these they should be tried for a few days before the journey to make sure that no food which disagrees with him is taken along. It is advisable to take along one's own spoon and drinking cup for the baby.

Part 2

GROWTH
AND DEVELOPMENT
OF INFANTS

GROWTH AND DEVELOPMENT OF INFANTS

WEIGHT

§ *Of what importance is the weight of a child?*

Nothing else tells so accurately how well he is thriving. During the first year a record of the weight is almost indispensable; throughout childhood it is of much interest and is the best guide to the physical condition. It will repay any mother or nurse to keep such a record.

§ *How frequently should a child be weighed?*

Every week during the first six months, and at least once in two weeks during the last six months of the first year. After the first year a child should be weighed at least once a month.

§ *How rapidly should an infant gain in weight during the first year?*

There is usually a loss during the first week of from four to eight ounces; after this a healthy child should gain from four to eight ounces a week up to about

the sixth month. From six to twelve months the gain is less, usually from two to four ounces a week.

§ *Is it to be expected that bottle-fed infants will gain as rapidly as those who are nursed?*

If the feeding employed is a suitable one and the technique of feeding is properly carried out, the bottle-fed infant will gain quite as rapidly as the infant who is nursed.

§ *For a child of average weight at birth (seven and a half pounds) what should be the weight at the different periods during the first year?*

At three months it should be twelve to thirteen pounds; at six months, sixteen to seventeen pounds; at nine months, eighteen to nineteen pounds. At five months an average healthy child has doubled his birth weight, and at twelve months he has nearly trebled it. (See chart, page 309.)

§ *Do all healthy infants gain steadily in weight during the first year?*

As a rule they do; yet it is seldom the case that one gains every week for the entire year. With most infants there are from time to time periods of a few weeks in which no gain is made. These are more often seen from the seventh to the tenth month and frequently occur when the child is cutting teeth, sometimes during very hot weather.

§ *Is it true that every infant who gains rapidly in weight is thriving normally?*

Not invariably. Some who are given excessive quantities of carbohydrate (see p. 192) may increase rapidly in weight but not in strength, nor in their development in other respects.

§ *Is the weight of as much value in the second year as a guide to the child's condition?*

After the first year, the gain in weight is seldom so regular; there are many interruptions, some depending on season and others occurring without apparent cause.

RATE OF GROWTH OF SMALL AND LARGE TYPES OF HEALTHY BOYS

Age	Weight (pounds)	Height (inches)	Chest (inches)	Head (inches)
Birth	7-9	20-21	13-13½	13½-14
1 year	20-23	28½-31	18-19½	18¼-19
2 years	25-29¾	32½-36	19-20½	19-19½
3 years	30-35	36-39½	19½-21½	19½-20
4 years	34-39½	39-42½	20-22	19¾-20¼
5 years	38-44	41½-45	20½-22½	20-20½

NOTE.—All weights and measurements are without clothes.

The weights for girls of different types are about one pound less than those for boys. The measurements for girls at the different ages are approximately one-fourth to one-half inch less than those of boys.

MUSCULAR AND MENTAL DEVELOPMENT

§ *What should a normal baby be able to do at different ages?*

The average time for various accomplishments is as follows:

At 1 month:

He follows a light and various objects with his eyes.
Pays attention to sounds.

At 3 months:

He smiles.
Notices his hands and puts his fingers into his mouth.

At 4 months:

He holds up his head when the body is supported.
Laughs aloud.
Moves both eyes in unison.
Turns his head toward a sound.

At 5 months:

He recognizes objects, such as the bottle and people.
Reaches for things.

At 6 months:

He begins to handle objects.

At 8 months:

He can sit alone.

At 10 months:

He can creep and makes his first attempts to stand.
Speaks monosyllables: "da-da," "mama," etc.

At 1 year:

He can stand with support and may be able to walk.
Can play games, such as "pat-a-cake" or "peek-a-boo."
Begins to associate words with objects or people.
Knows the meaning of "yes" and "no."

At 18 months:

He can walk without difficulty.

Climbs stairs.

Turns the pages of a book.

Can say five or six words.

At 2 years:

He runs.

Uses three-word sentences.

Can point to eyes, nose, mouth.

§ *What conditions postpone these events?*

Prematurity, or any severe or prolonged illness may do so. A common cause is adenoids. Defective vision or hearing may be responsible for retarded development. Mentally deficient children are invariably backward.

Obese children and those with rickets are usually late in sitting, standing, and walking.

§ *Should a child be urged to walk?*

Never; he is usually quite willing to do so as soon as his muscles and bones are strong enough. None of the contrivances for teaching children to walk are to be advised.

§ *What should be done if a baby is backward in development?*

The schedule given above is only an average one. Individual infants develop at different rates, and slight deviations from it need not cause concern. If the retardation is marked, however, it should be brought to the attention of a physician.

§ *Is delayed talking necessarily a serious matter?*

Occasionally one sees infants whose development is normal in all other respects but who make no attempt to speak until the age of two or even three years. If their muscular accomplishments and comprehension are normal this delay need not cause concern. It is, however, a wise precaution to consult a physician in such cases.

FONTANEL

§ *At what age should the fontanel close?*

The average is from fourteen to sixteen months. It seldom closes before one year. In healthy children it is invariably closed before two years.

DENTITION

§ *How many teeth are there in the first set?*

Twenty.

§ *What is the time of their appearance?*

The two central lower teeth are usually the first to appear, and come from the fifth to the ninth month; next are the four upper central teeth, which come from the eighth to the twelfth month. The other two lower central teeth and the four front double teeth come from the twelfth to the eighteenth month. Then follow the four cuspids (canine teeth), the two upper ones being known as the "eye teeth," and the two lower as the "stomach teeth": they generally come

between the eighteenth and the twenty-fourth month. The four back double teeth, which complete the first set, come between the twenty-fourth and thirtieth month (see p. 314).

At one year, a child usually has six teeth.

At one and a half years, twelve teeth.

At two years, sixteen teeth.

At two and a half years, twenty teeth.

¶ *What are the causes of variation?*

The time of appearance of the teeth varies in different families; in some they come very early, in others much later. The teeth may come late as a result of prolonged illness and also from rickets.

¶ *What symptoms are commonly seen with teething?*

In healthy children there is very often fretfulness and poor sleep for two or three nights; there is a constant disposition to put the fingers into the mouth; often there is drooling and loss of appetite.

¶ *How long do these symptoms last?*

Usually only three or four days; but there may be no gain in weight for two or three weeks.

¶ *What is the cause of most of the other symptoms attributed to teething?*

Nearly all of them come from indigestion, due to the presence of some unrecognized infection.

¶ *Is the care of the first teeth a matter of importance?*

By all means. Decayed teeth may be responsible for poor appetite and malnutrition as well as for disease in other parts of the body. Moreover, neglect of the first teeth may be responsible for injury to the second set that is developing beneath them.

¶ *What can be done to prevent decay of the first teeth?*

To a large extent the health of the first teeth, which are laid down before the baby is born, depends on the diet of the mother during pregnancy. Mothers who have been given plenty of milk and a supplement of cod liver oil or some other form of vitamin D are likely to have babies with stronger teeth. The cleansing of the teeth is also important, however. The first teeth should be brushed daily with a soft brush.

¶ *What should be done if there is decay of the first teeth?*

A dentist should be consulted. Teeth with small cavities should be filled; those with large cavities extracted.

Part 3

BREAST FEEDING

BREAST FEEDING

BREAST MILK

§ *What is the best infant food?*

Mother's milk from a healthy mother.

§ *Of what is mother's milk composed?*

Thirteen parts solids and eighty-seven parts water.

§ *What are the solids?*

The chief solids are the proteins, the fat, and the sugar. There are also present small amounts of minerals and vitamins.

§ *What are the proteins?*

Lactalbumin and casein (the curd) are the two important proteins of milk.

§ *What is the fat?*

It is butter fat.

§ *What is the sugar?*

It is lactose, or milk sugar.

§ *Are all these elements necessary?*

Yes; we can not expect to rear a healthy infant unless they are all in his food.

§ *Of what use are the proteins?*

They are needed for the growth and repair of the body cells, such as those of the blood, the organs and the muscles.

§ *Of what use is the fat?*

It is particularly valuable for the production of heat and to supply the fat of the body.

§ *Of what use is the sugar?*

It is the chief fuel of the body and is needed to produce heat and to perform bodily work.

§ *Of what use are the salts?*

Particularly for the formation of blood and bone.

§ *Of what use are the vitamins?*

Minute amounts of these substances (see p. 195) are necessary to enable the body to utilize the food which is supplied to it.

§ *Of what use is the water?*

By means of the water the food is kept in a state of minute subdivision or in solution, so that the delicate organs of the infant can digest it. It is also necessary to enable the body to get rid of its waste.

NURSING

¶ *Why should mothers nurse their children?*

Because breast feeding is the safest method of feeding infants. Statistics show that the mortality of bottle-fed infants during the first year is fully three times as great as that of those who are breast fed. Although cow's milk mixtures can now be prepared that furnish a completely satisfactory food for nearly all infants, the chances of error in preparing a feeding and of infection from contamination of a bottle feeding are still considerable unless artificial feeding is done with the greatest care.

¶ *At what period is nursing of greatest importance?*

For the first three or four months, to give the child a proper start.

¶ *When should maternal nursing not be attempted?*

If the mother has or has had tuberculosis or any other serious chronic disease, or is herself in poor health, she should not try. She is likely soon to fail in nourishing her child, and the attempt may do her much harm.

NURSING SCHEDULES

¶ *How often should infants be nursed during the first two days of life?*

The mother should be allowed a twelve-hour sleep after the birth of the baby. After this the infant

should be put to the breast for five minutes every six hours. More frequent nursing is not necessary, since there is very little milk secreted at this time.

¶ *When does the milk come in abundance?*

Usually this occurs on the third day, but sometimes not until the fourth or fifth or even the ninth or tenth day.

¶ *Should the infant be fed anything additional during the first two days?*

Usually not; if much food were necessary, we may be sure that Nature would have provided it; but water should be given several times a day.

Very large infants, nine pounds or over, are more developed and usually require to be fed on the second day. They may be offered a bottle containing two ounces of the standard formula (see p. 90) after each breast feeding, and should be allowed to take as much of this as they will in five minutes. When the supply of breast milk comes in, the quantity taken from the bottle will fall off and the supplementary bottle may be discontinued.

¶ *How frequently should an infant be nursed?*

The rules for the average infant are given in the following table. There are, however, many infants who do quite as well when nursed only every four hours from the very beginning.

Age of Child	Nursing Interval by Day	Number of Night Nursings (10 P.M. to 6 A.M.)	Number of Nursings in 24 hours
1 to 2 days	6 hours	1	4
3 days to 3 weeks	3 hours	1	7
3 weeks to 2 months	4 hours	1	6
Over 2 months	4 hours	0	5

§ *How long should the child be kept at the breast for one nursing?*

Seldom more than ten or twelve minutes; if both breasts are given, six or seven minutes on each side. The baby gets most of the milk in the first five or six minutes. If nursed for a long time he is likely to form the habit of biting the nipples and making them sore, or of nursing and sleeping alternately while at the breast. Shortening the baby's nursing time often proves a great relief to the mother and is better for the baby.

§ *Should the child take both breasts at one nursing?*

If the milk is abundant one breast may be sufficient, otherwise both breasts may be taken.

RULES IN NURSING

§ *What are the important rules in nursing?*

First, regularity: it is just as important as in bottle feeding (see p. 94); second, the nipples should be

washed gently before and after every nursing; third, after each nursing the child should be held over the mother's shoulder for a few moments and patted gently to allow him to bring up any air that may have been swallowed.

DIET OF THE MOTHER

§ *What should be the diet of a nursing mother?*

She should have a simple but generous diet with plenty of fluids, including milk; three regular meals may be given, and additional milk or cocoa at bedtime may be advisable. The diet should consist of foods which the mother likes. It should include meat, eggs, cereals, fruits, and nearly all vegetables. An excess of starchy foods, such as breadstuffs, pastry, and rich desserts should, however, be avoided. Only weak tea or coffee should be allowed, and tobacco and alcohol should be avoided.

§ *How much milk should a nursing mother take?*

The quantity should be roughly equal to that required by the baby; a glass or two a day for the early weeks and three to four glasses a day for the later months.

§ *Are vitamin supplements necessary?*

If the mother's diet is adequate in quantity and contains liberal amounts of milk, butter, meat, and vegetables, she need not worry about vitamins.

¶ *Are fruits likely to disturb a nursing infant?*

Unripe fruits in some cases may do so, but sweet fruits and most cooked fruits are useful.

DAILY LIFE OF THE MOTHER

¶ *What else is important in the life of the nursing mother?*

She should lead a simple natural life; should have regular out-of-door exercise, preferably walking or driving, as soon after her confinement as her condition will permit. She should be as free as possible from unnecessary cares and worry; her rest at night should be disturbed as little as possible; she should go to bed early and lie down for at least one hour in the middle of the day. She should avoid the use of drugs, for these may be excreted in the milk and may make the baby ill.

¶ *Do nervous conditions affect the milk?*

Very much more than her diet: worry, anxiety, fatigue, loss of sleep, household cares, social dissipation, etc., have more than anything else to do with the failure of the modern mother as a nurse. Uncontrolled emotions, grief, excitement, fright, passion, may cause milk to disagree; at times they may excite acute illness in the child and at other times they may cause a sudden and complete disappearance of the milk.

§ *Does menstruation affect the milk?*

In nearly all cases the quantity of milk is lessened during the period, so that the infant is not satisfied and may not gain in weight. In many cases the quality of the milk is also affected to such a degree as to cause slight disturbances of digestion, like restlessness, colic, or some derangement of the bowels. In exceptional instances, severe attacks of acute indigestion are excited.

§ *Is the return of menstruation a reason for stopping nursing?*

Not usually; as a rule both functions do not go on together. But if the child is gaining regularly in weight between the periods, nursing may be continued indefinitely, although it may be well to feed the infant wholly or in part during the first day or two that the mother is unwell.

SUCCESSFUL AND UNSUCCESSFUL
NURSING

§ *What symptoms indicate that a nursing infant is well nourished?*

He has good color, sleeps two or three hours after nursing, or, if awake, is quiet, good-natured, and apparently comfortable. He has normal movements of the bowels and gains weight steadily.

§ *What symptoms indicate a scanty milk supply and that an infant who is nursing is not properly nourished?*

He does not gain and may even lose in weight. He no longer exhibits his usual energy and playfulness, but is listless or cross, fretful, and irritable, and is apt to sleep poorly. He may vomit or show signs of colic as a result of air that he has swallowed in a futile attempt to get sufficient milk. When the milk is scanty he will often nurse a long time at the breasts, sometimes three-quarters of an hour, before stopping. At other times he may take the breast for a moment only, and then turn away in apparent disgust. The only sure way of telling how much milk a child is getting is to weigh him before and after nursing, several times a day; the child need not be undressed for this purpose.

§ *How much milk should an infant obtain at one nursing?*

The following quantities may be regarded as satisfactory:

At 3 to 4 weeks of age	3 to 4 ounces
At 3 months	4 to 6 ounces
At 5 months	5 to 7 ounces

§ *How can the secretion of milk be increased?*

The child should be put to the breasts regularly, being given both sides every three or every four hours.

The breasts should always be completely emptied by "milking" them after the child has stopped nursing.* The mother should have a generous diet with an abundance of milk (one quart a day is desirable). She should have plenty of rest and sleep and freedom from worry or excitement. She should persist in her efforts and be encouraged with the assurance that she will succeed.

¶ *What should be done when the mother's milk is insufficient?*

Infrequent nursing tends to reduce the milk supply. It is, therefore, better instead of alternating breast and bottle feedings as is often done, to nurse regularly and give other food after each nursing. This practice should be continued until it is evident that there is no appreciable amount of milk secreted. Toward the end of lactation a different plan may be followed; then it is well to lessen the number of nursings and replace them by entire feedings from a cup or from a bottle.

* This may be done by hand or by an electric breast pump. When milking by hand the breast should be grasped between the thumb and index finger at the edge of the areola (pigmented area). The fingers should be pressed in deep and then brought together behind the nipple, after which a slight forward pull is given without slipping the fingers over the skin. This motion is repeated until the breast is empty. It is not necessary to touch the nipple itself during the process.

An electric breast pump, which can be rented from surgical instrument companies in most large cities, is even more satisfactory than manual milking. It empties the breast more completely and therefore causes a greater stimulus to milk secretion.

§ *Is there any objection to a baby's being partly nursed and partly bottle-fed?*

None whatever; it is often better from the outset to feed the baby during the night, in order not to disturb the mother's rest. If the mother has only milk enough for two or three nursings a day, this should be continued so long as her milk agrees with the baby. On the other hand if, after suitable efforts, the mother is able to supply less than half of the baby's daily food, weaning is usually desirable.

§ *Is weaning advisable if the milk becomes bluish and watery?*

By no means. Many infants are unnecessarily weaned because of a mistaken impression that milk of this character is poor in quality. It should be known that after the first few weeks it is quite normal for breast milk to become bluish and watery; this is particularly true of the milk secreted in the first few minutes of nursing.

INDIGESTION IN NURSING INFANTS

§ *What symptoms indicate that the mother's milk disagrees with the child?*

Symptoms of indigestion not infrequently occur in nursing infants, but the fault is usually not with the mother's milk. No greater mistake can be made than to wean an infant simply because there are signs of indigestion.

Most cases of colic and many cases of vomiting which are usually attributed to indigestion are due to the fact that the child is simply hungry. This is recognized by the fact that the symptoms cease when the child is given additional food after nursing.

¶ *What changes should be made if a nursing infant habitually vomits?*

Spitting up of small amounts of food immediately after feeding occurs in many normal infants. If the child is otherwise healthy and is gaining in weight this should cause no concern.

The vomiting which sometimes occurs as a result of hunger has already been referred to. It seldom comes directly after nursing. It disappears when sufficient food is given.

If the vomiting occurs *soon after nursing*, the infant has usually taken too much; the time of nursing should be shortened, or only one breast given. Nursing should be interrupted every few moments and the child should be placed upright and patted gently on the back to enable him to get rid of the gas in the stomach.

It occasionally happens, particularly with young mothers, that vomiting occurs because the milk is too rich in fat. The vomiting is then likely to occur *some time after nursing*, and may be repeated. When this is the case, one should lengthen the intervals between nursing to four hours or even longer; both breasts should be given at each nursing and a shorter length of time allowed for each. The breast milk may be

diluted by giving one or two tablespoonfuls of plain boiled water or barley water from a bottle five or ten minutes before nursing.

These measures will usually control the vomiting. Even if they should not do so entirely one should be satisfied as long as the child is well nourished and gains weight. If the vomiting does not improve and the child is losing weight, a physician should be consulted. A very severe type of vomiting sometimes occurs in the early weeks of life which is due to an obstruction of the stomach (pyloric stenosis). To remedy this condition a surgical operation is usually necessary.

§ *What should be done if the infant has frequent habitual colic?*

The mother should take more out-of-door exercise and try to control her emotions; all causes of worry should be removed. One should also make sure that the infant is getting enough food.

It should be remembered that during the first two or three months some infants, especially those of a nervous type, cry much as if suffering from colic, although they have no other symptoms of indigestion and may be gaining regularly.

§ *Can constipation in a nursing infant be controlled through the mother's milk?*

Only to a limited extent. But it is important that the mother's bowels be regular and her digestion good.

¶ *Are not infections a common cause of indigestion in infants?*

This is quite true. Even a mild infection like a common cold may upset a child's digestion. There may be vomiting, but the trouble is usually intestinal. The stools are frequent, loose, and greenish; often they contain mucus and are passed with much gas.

¶ *What should be done under these circumstances?*

One should reduce the food by shortening the length of time the child is at the breast. Additional water should be given from a bottle between feedings. It is seldom necessary to continue this for more than a few days.

The important thing is to protect the child from infections as far as it is possible.

¶ *Should a mother with an ordinary cold continue to nurse her baby?*

The danger of infecting the child while nursing is considerable. Common colds are very contagious and these may have serious consequences in young infants. It is not necessary to stop nursing, but while nursing, the mother should cover her mouth and nose with a handkerchief, particularly when coughing or sneezing, and on no account should she kiss the infant.

¶ *What should be done if the breast becomes sore?*

Engorgement or "caking" of the breast occurs when more milk is produced than is withdrawn by the baby.

This may result in considerable discomfort to the mother. It is likely to occur when the milk first comes in or when the baby is sick and loses his appetite. When it occurs at the onset of lactation it is best ignored, for within a few days the supply of milk will adjust itself to the demand. In the case of illness of the baby with loss of appetite it is better to pump the breasts after nursing in order to maintain the milk supply, which the baby will need as soon as he recovers.

The presence of cracked nipples may be responsible for the breast being painful when nursing, and in some instances infection of the breast follows, with swelling, redness, and throbbing pain. Under these circumstances the baby should not be allowed to nurse from that particular breast, but nursing should be supplemented by a bottle feeding. If only the nipples are cracked, the supply of breast milk in that breast should be maintained by pumping for a few days until the nipples have healed. If infection of the breast has developed, it is usually advisable to discontinue the use of that breast altogether. An infected breast should be called to the attention of a physician.

WEANING

¶ *At what age should the child be weaned from the breast?*

Usually weaning should be begun at seven or eight months by substituting one feeding a day for a nurs-

ing, later two feedings, and thus gradually the child is to be taken from the breast altogether.

§ *What are the principal reasons for weaning earlier?*

When symptoms of indigestion persist and the amount of milk secreted is less than half of the daily requirement, weaning is usually advisable. *It is a safe rule, however, not to wean when the milk supply is abundant, but to seek some other explanation of the symptoms.* Serious illness of the mother or the occurrence of pregnancy may make weaning necessary. If it is clear that nursing is proving an undue strain on the mother, early weaning may be advisable, but as a rule an infant should not be weaned during the early months without the advice of a physician.

§ *At what age should weaning be completed?*

It should not be continued beyond eight or nine months, in any case. This holds true even if weaning is to be done in the summer; the dangers of weaning are much less than those of continuing to nurse, as is so often done, after the breast milk has become very scanty and poor in quality.

§ *When should a child who is weaned from the breast be taught to drink from the cup, and when to take the bottle?*

An infant of nine or ten months can readily be taught to drink from a cup. Younger ones should be given a bottle.

¶ *How may some difficulties in weaning be overcome?*

By feeding every nursing infant once a day or by giving him water regularly from a feeding bottle. He then becomes accustomed to the bottle. This is a matter of great convenience during the whole period of nursing when the mother or nurse may from necessity be away from the child for a few hours; when more feedings are required at the time of weaning the child does not object.

¶ *What food other than milk should be given to a nursing baby?*

Cod liver oil or some other form of vitamin D (see p. 285) should be given to all infants as soon as gain in weight is well established, during the second or third week. One teaspoonful a day of the oil should be given at first; this may be increased to a teaspoonful three times a day during the next few weeks.

Orange juice may be started at the age of three or four weeks, small amounts being given at first and the quantity gradually increased as described later for babies who are artificially fed. Solid foods should be introduced beginning at the fifth or sixth month, exactly as is done in the case of infants fed on cow's milk. It is advisable to add only one new article of diet at a time. After this has been taken for several days without any signs of indigestion, another article of food may be added.

¶ *Can a baby just weaned take cow's milk of the same strength as one of the same age who has become accustomed to it?*

Formerly, when raw milk or milk which had only been pasteurized was fed, it often required a week or two for the baby to become accustomed to the new food. On this account it was advisable to use more dilute feedings to begin with and to increase the strength of the food gradually. Neglect of this precaution often led to indigestion.

Now that artificial feeding is done either with boiled milk or with some form of processed milk such as dried milk, evaporated milk, fermented milk, or acidified milk (see p. 123), this precaution has become unnecessary. Milk so treated is thereby rendered more digestible, and it is therefore quite safe to start with the standard formula (see p. 90).

Part 4

ARTIFICIAL FEEDING

ARTIFICIAL FEEDING

FEEDING OF HEALTHY INFANTS

§ *What is the best substitute for mother's milk?*

The milk of some animal—cow's milk being the only one which is available for general use.

§ *Is it not possible for infants to thrive upon foods other than those containing milk?*

It is possible and in rare circumstances necessary to feed infants on foods other than milk, but this should never be attempted except under the direction of a physician.

§ *What are the dangers of such foods?*

Most foods other than milk lack some essential for healthy growth. This is true of many prepared "infant foods." Unless the diet is planned with great care, some important constituent is likely to be left out. The child may thrive for a time, but not for very long. He may develop some deficiency disease such as scurvy or rickets, and in other cases simply a condi-

tion of general malnutrition—the child, though sometimes fat, does not thrive, is pale, and his tissues are soft and flabby. His resistance to diseases of all kinds is likely to be much below normal.

§ *What type of cow's milk should be used for feeding infants?*

Fresh whole milk, unsweetened evaporated milk, and powdered whole milk are all satisfactory for routine use.

§ *Is not fresh milk to be preferred?*

By no means. It is less uniform in composition, is more liable to contamination, and is, on the whole, less readily digestible than are the canned milks. Under proper conditions fresh milk is, however, a suitable food for infants.

THE SELECTION AND CARE OF FRESH MILK

§ *What are the essential points in milk selected for the feeding of infants?*

That it come from healthy cows, be handled only by healthy persons, and that it be kept clean and be not allowed to stand too long before use.

§ *Is it important to select a rich milk?*

By no means; in fact, the rich milk of Jersey and Guernsey cows is not nearly so satisfactory in infant feeding as that from common "grade cows."

¶ *Which is the better, milk from one cow or the mixed milk of several cows?*

The mixed, or "herd milk," is usually to be preferred, since it varies little from day to day, while that from a single cow may vary considerably.

¶ *How fresh should cow's milk be for infant feeding?*

This depends very much upon the season, and how carefully milk is handled. As ordinarily handled at the dairy and in the home, milk should not be used for infants in winter after it is forty-eight hours old; in summer not after it is twenty-four hours old, and it may be unsafe in a much shorter time. When handled with especial care milk may be safe for a longer time.

¶ *What are the essentials in handling milk?*

1. That it be kept clean and free from contamination. This necessitates that cows, stables, and milkers be clean, and that transportation be in sealed bottles; also that those who handle the milk are themselves healthy and have not come in contact with any contagious disease. All milk pails, bottles, cans, and other utensils with which the milk comes in contact should be sterilized shortly before they are used.

2. That it be cooled immediately after leaving the cows, and kept at as low a temperature as possible; to be effective this should not be above 50° F.

The grade "A" pasteurized milk sold in most American cities has met these requirements and can be

considered altogether safe for infants, if it is boiled before use.

Milk produced under especially rigorous conditions is sold raw under the name of "certified milk." Such milk was much to be preferred when raw milk was fed to infants, but now that milk is boiled in the home in any case, the additional cost of certified milk is hardly justified.

§ *How should milk be handled in the home when obtained fresh from the cows?*

Milk used for infants should be boiled at once and then strained through several thicknesses of cheesecloth into quart glass jars or milk bottles which should be covered and cooled immediately, best by placing the bottles quite up to their necks in ice water or cold spring water, where they should stand for at least half an hour. That which is required for older children should also be boiled unless it comes from cows which are regularly tested and are known to be free from tuberculosis; with such the boiling may be omitted. It may then be poured into eight-ounce bottles, stoppered with cotton, and put in the ice chest, or the coolest place possible. This early rapid cooling is very important and adds much to the keeping qualities of the milk. Milk loses its heat very quickly when cooled in ice water, but very slowly when it is simply placed in a cold room or refrigerator. After standing twelve to sixteen hours the cream may be removed, if this is desired.

§ *How should milk be handled when bottled milk is purchased?*

It should be put on ice at once as its temperature is usually somewhat raised during transportation. If it is desirable to remove the cream, this may be done after two or three hours' standing.

§ *How should milk and cream be handled when they are purchased in bulk?*

Such milk should never be used for infants when it is possible to obtain bottled or canned milk, as it is much more liable to contamination. It should be boiled at once, then put into sterilized bottles and kept in the coolest place possible.

§ *Are there any objections to the use of vacuum (thermos) bottles for keeping the milk warm or cold?*

They are often useful to keep milk cold while traveling. They should not be used to keep milk warm as for night feedings. Milk which has been kept for several hours at the feeding temperature is often so changed as to make the baby ill.

STERILIZATION OF MILK

§ *What is meant by sterilizing milk?*

Heating to destroy the germs it contains.

¶ *Does all cow's milk contain germs?*

Yes; even when handled most carefully, milk contains many germs; but when carelessly handled, and in summer, the number is enormous. While most of these organisms are harmless or cause only the souring of milk, others are occasionally present which may produce serious diseases, such as typhoid fever, diphtheria, scarlet fever, septic sore throat, tuberculosis, brucellosis, and some forms of diarrhea.

¶ *Should all milk used for infant feeding be sterilized?*

Although the risk in feeding raw milk is comparatively small when "certified milk" is used, epidemics of disease sometimes occur even when great care is used in handling the milk. It is therefore safer to sterilize all milk used for feeding infants under two years of age.

¶ *Will milk which has been heated to destroy its germs keep indefinitely?*

No; for although all the living germs may be killed, there are many undeveloped germs, or spores, which are not destroyed, and which soon grow into living germs. Although such milk will often keep on ice for several days, it is best to use it within twenty-four hours.

¶ *Is milk which has been sterilized always a safe food?*

No; for the reason that the milk may be so old, so dirty, and so contaminated before sterilizing that it

may be still unfit for infant feeding, though it contains no living germs.

¶ *Is cow's milk rendered more digestible by being heated in this way?*

Yes; the curd of the milk is altered by heating and is thereby rendered more digestible.

¶ *Is not milk injured by heating?*

The vitamin which prevents scurvy, vitamin C, is partly destroyed by the heating. One must therefore always give orange juice or some other food which prevents scurvy (see p. 283) whenever sterilized milk is used.

¶ *What are the two methods of heating milk?*

The first method is known as *pasteurizing*, in which the milk is heated to 155° or 160° F. for thirty minutes. The milk may also be sterilized by *boiling*. With the exception of a few dairies which are allowed to sell "certified" raw milk, practically all the milk now sold in American cities has been pasteurized before delivery.

¶ *Which method is to be preferred?*

Although pasteurization when properly carried out will suffice to kill the germs of the diseases above referred to, sterilization by boiling is to be preferred. This provides absolute certainty that germs are destroyed, and besides the higher temperature renders the milk curd more digestible.

¶ *Is not milk which has been pasteurized before delivery a safe food for infants?*

Considerable danger may lurk in commercially pasteurized milk because of the false sense of security. For safety several things are necessary: the milk should be reasonably clean before pasteurization; the apparatus, the bottles, or other utensils containing milk should be carefully sterilized, and the whole process carried on with the most scrupulous care and cleanliness. Since pasteurization kills chiefly the bacteria which cause milk to sour, other germs, the spores of which are not killed by such heating, may develop rapidly unless the milk is kept cold, and though it may not turn sour, it may contain immense numbers of germs when it is delivered or used. There is also the danger that the milk may become contaminated after pasteurization from some one who has handled it. For these reasons it is advisable to boil the milk in the home in any case before feeding it to infants.

¶ *How may this be done in the home?*

After the milk for the day has been prepared, it may be heated in an open vessel until it boils freely; it is then cooled and put into feeding bottles which have been sterilized by boiling. Another way is to put the prepared feeding directly into the bottles, which are then stoppered and stood in boiling water for fifteen minutes. The level of the water outside should be as high as that of the milk inside the bottle.

§ *How should milk be cooled after boiling?*

If the feeding has been sterilized in the bottles, these should be placed in cold water, so as to cool them rapidly. They should never be allowed to stand at the temperature of the room, nor be placed, when warm, in an ice box. Bottles made of Pyrex glass may be put immediately into cold water without danger of breaking. The ordinary bottle requires a few minutes' cooling in the air before this can be done.

When the milk has been sterilized in an open container, it may either be poured at once into Pyrex bottles, or, after a suitable interval, into ordinary glass bottles and then cooled as just described.

§ *Why is this precaution necessary?*

Cooling in the air or in an ice box requires from two to four hours, and during that time a great many of the undeveloped germs may mature and greatly injure the keeping properties of the milk. In the cold water, milk can be cooled in from ten to twenty minutes if the water is frequently changed, or if ice is added to the water.

FROZEN MILK

§ *Is milk in any way injured for infant feeding by having been frozen?*

The formation of a little ice in the milk is of no importance, but milk which has been frozen solid may be quite unsuitable for infant feeding. Certain bacteria which grow only at extremely low temperatures

may produce changes in the milk that cause it to disagree with infants. In extremely cold weather when it is impossible to transport milk without freezing, dried or evaporated milk should be used.

EVAPORATED MILK *

§ *What is evaporated milk?*

It is milk from which some of the water is evaporated until one part represents two and one-fourth parts of the original milk. It is sterilized under pressure (autoclaved) and sold in cans.

§ *What are its advantages?*

A sealed can of evaporated milk is completely sterile and may be kept for years without refrigeration. Evaporated milk is therefore particularly valuable where facilities for cooling are not available. It is a great convenience in traveling and in localities where no good fresh milk is available.

It has the further advantage of being uniform in composition. The high temperature used in autoclaving it produces a more marked alteration in the curd than is produced by boiling alone, a fact which increases its digestibility for infants. It is also somewhat cheaper than fresh milk.

§ *What are the disadvantages of evaporated milk?*

The antiscorbutic vitamin (vitamin C) has been in large measure destroyed in the processing of the milk,

* This should not be confused with sweetened condensed milk. The latter is not recommended for infant feeding because of the large quantity of sugar added to preserve it.

and orange juice or some substitute (see p. 283) must always be added, when it is fed. Since it is now routine to give all babies orange juice or some substitute, this disadvantage is no longer valid.

Some deterioration of other vitamins may occur in canned milk which has been kept for several years, a circumstance which does not ordinarily arise.

The taste of evaporated milk is somewhat altered by the heating to which it is subjected, but infants do not object to this.

§ *What precautions are to be employed in handling evaporated milk?*

It must be remembered that evaporated milk ceases to be sterile as soon as the can is opened. From then on it requires the same refrigeration as is needed for fresh milk, and it will spoil quite as rapidly. Feedings made from evaporated milk should be diluted with freshly boiled water, put in sterile bottles, and refrigerated unless they are to be used at once. It is even better to put the evaporated milk formula into the feeding bottles and to sterilize it in them just as is done in the case of fresh milk. A second sterilization does no harm and protects against the possibility of contamination from the feeding bottle.

§ *How may feedings from evaporated milk be prepared?*

One may first reconstitute the original whole milk by adding a little more than an equal volume of water. A seven ounce can, so diluted, will make exactly one

pint of milk; a fourteen ounce can will make a quart of milk. One may then use the directions (see p. 90) for formulas made from whole fresh milk.

Another way is to use the formulas planned for undiluted evaporated milk (see p. 91).

DRIED MILK

§ *What is dried milk?*

It is whole milk which has been pasteurized and the water removed by spraying it into a hot air chamber. The solids of the milk remain as a white or yellowish-white flaky powder, which is sold in cans.*

§ *What advantages has dried milk?*

In sealed cans it is practically sterile and may be kept for years. It does not spoil as rapidly as evaporated milk when the can is opened, and may be kept for several days thereafter without refrigeration. For this reason dried milk is particularly useful when no facilities for refrigeration are available and when each feeding must therefore be made up just before it is to be used.

The processing of the milk alters the taste slightly and improves the digestibility of the curd. The alteration in the processing is not quite as great as in the case of evaporated milk, but it is sufficient to render the milk readily digestible by infants.

* In purchasing dried milk one should be certain that the product is dried *whole* milk, rather than dried skimmed or partially skimmed milk. Several brands of dried whole milk are marketed, the best known in this country being Klim.

§ *What disadvantages has dried milk?*

Its cost is slightly greater than fresh milk. The anti-scorbutic vitamin has largely been destroyed and must be replaced by giving orange juice. But when orange juice is given routinely, as it should be, to all babies, there is no disadvantage in using dried milk routinely. There is some deterioration of other vitamins on long standing, but unless the milk is kept for years this need occasion no concern.

§ *How are feedings of dried milk to be prepared?*

The proper amount of milk powder * is dissolved in boiled water and beaten with a fork or an egg beater to get rid of the few remaining lumps. Or the powder may be mixed with ordinary water, put into the feeding bottles, and sterilized in them. Unless the feeding is to be used at once it should be refrigerated until it is used, just as is the case with fresh milk or evaporated milk.

THE MODIFICATION OF COW'S MILK

§ *What is meant by the modification of cow's milk?*

Changing its proportions so that it can be more easily digested.

* Four level tablespoonfuls of dried whole milk powder added to eight ounces of water will reconstitute the original whole milk. In making up formulas for infants one may either reconstitute whole milk and use the formulas for whole milk or else use the formulas calling for whole milk powder as such (see p. 91).

§ *Is it possible to modify cow's milk so as to make it a perfect substitute for mother's milk?*

Although we can not overcome all the differences between cow's milk and mother's milk, we can modify it in such a way that practically all infants can digest it and thrive on it.

§ *How is this milk, whose proportions have been changed, distinguished from the unchanged milk?*

It is usually called "modified milk," the original milk being known as "whole milk."

§ *What are the principal differences between cow's milk and mother's milk?*

Cow's milk has only a little more than half as much sugar, but it has nearly three times as much protein and salts; because of the higher proportion of casein in cow's milk protein, the curd formed in the stomach is tougher and more difficult to digest.

§ *Are there any other important things to be considered?*

Yes; mother's milk when fed from the breast is practically sterile. Cow's milk, or in fact any milk fed from a bottle, is to a greater or less degree contaminated by dirt and germs, the number of which increases rapidly (1) with the age of the milk; (2) in proportion to the amount of dust or dirt which enters it; (3) with any increase in the temperature at which the milk is kept. The sterilization procedures to which

cow's milk is subjected to make it safe and more digestible for infants destroy most of the antiscorbutic vitamin of the milk, which must be replaced.

It is just as important for success in infant feeding that these conditions receive attention as that the proportions of the different elements of the milk are right.

§ *Is the addition of lactic acid necessary?*

There may be some infants with digestive disturbances for whom the addition of lactic acid is beneficial. Its routine use for all infants is unnecessary and adds much to the trouble of preparing the formula.

§ *How is the sugar best increased?*

By adding sugar to the food; two level tablespoonfuls of cane sugar to each twenty ounces of food will give the proper quantity for the first six months. This will make the proportion about the same as in mother's milk.

§ *How should the sugar be prepared?*

It should be simply stirred into the milk until it dissolves.

§ *Is it not better to use milk sugar instead of cane sugar?*

Cane sugar is quite as satisfactory and has the advantage of being much cheaper.

§ *May any other sugar be used?*

Maltose (malt sugar) is quite as satisfactory as cane sugar for infant feeding. Preparations which contain considerable quantities of maltose are corn syrup and "dextrimaltose." *

§ *Have preparations containing maltose any advantages?*

They are less sweet than cane sugar, and are less likely to develop a taste for sweet food. This may be of some advantage when the time comes for introducing vegetables and other solid food into the diet. Corn syrup is slightly cheaper than cane sugar.

§ *Is not the purpose of the sugar to sweeten the food in order to make it palatable?*

Not at all; the purpose is to increase the amount of one of the essential elements needed for the growth and activity of the body, and the one that is required by young infants in the largest quantity.

§ *We have seen that cow's milk has much more protein and salts than mother's milk. How are these to be reduced?*

By diluting the milk.

§ *To what extent is dilution desirable?*

Ordinarily the milk should be diluted with half its volume of water.

* Two level tablespoonfuls of corn syrup and three of dextrimaltose are required to make one ounce of sugar, the equivalent of two level tablespoonfuls of cane sugar.

¶ *We have seen that the curd formed from cow's milk protein is less digestible than that of breast milk. How can this difficulty be overcome?*

By boiling the milk or by the use of dried or evaporated milk. These processes alter the protein and make it more digestible.

¶ *What is cream?*

Cream is the portion of the milk in which a large part of the fat has accumulated. It differs from milk in containing much more fat.

¶ *In what ways is cream now obtained?*

(1) By skimming, after the milk has stood usually for twenty-four hours; this is known as "gravity cream." (2) By an apparatus called a separator; this is known as "centrifugal cream"; most of the cream now sold in cities is of this kind. The richness of any cream is indicated by the amount of fat it contains.

The usual gravity cream sold has from 16 to 20 per cent fat. The cream removed from the upper part (one-fifth) of a bottle of milk has about 16 per cent fat. The usual centrifugal cream has 18 to 20 per cent fat. The heavy centrifugal cream has 35 to 40 per cent fat.

¶ *Is cream suitable for feeding infants?*

Although many infants can take mixtures containing more than the $3\frac{1}{2}$ or 4 per cent of fat present in ordinary milk, there are some who lose their appetite

and may become upset by such feedings. It is therefore wiser to use milk which contains no more than the standard percentage of fat for infant feeding.

When preparing feedings from ordinary bottled milk one should first invert the bottle several times in order to distribute throughout the bottle any cream that has risen to the surface; one may then measure out the quantity of milk called for in the formula.

PLANNING THE FOOD FOR HEALTHY INFANTS *

¶ *In deciding upon the food for young infants, what are the different points to be determined?*

1. The amount of milk and sugar required for twenty-four hours.

2. The volume or the number of ounces of fluid to be given in twenty-four hours; this will include the fluid supplied as milk, and the water added.

3. The number of feedings into which the daily food is to be divided, and the intervals at which the food is given.

¶ *Which is the most important?*

The quantity of milk and sugar which are given. This must be sufficient for what are known as the energy requirements of the body, which are, (1) to

* The directions given in the following pages are intended for guidance in feeding children who are not suffering from any special disturbance of digestion; directions for disturbances of digestion are given in a later chapter.

produce heat; (2) to repair waste; (3) to provide for growth; (4) to provide for bodily activity.

§ *What happens if too little food is given?*

Heat and waste must always be provided for first. Activity, too, is likely to continue; hence it is growth which usually suffers. There is not a proper gain in weight.

§ *What happens if too much food is given?*

The excess becomes a burden to the child and hinders his progress. If too much food is continued for any length of time, serious disturbances of digestion and nutrition are apt to follow. It is therefore very important to give enough, but also to give no more than the child actually needs.

§ *How do we know how much food a healthy child needs?*

This depends upon several things. Chiefly upon his age, his weight, and his activity.

§ *Is it not possible to feed by age alone?*

This is not always a reliable guide; the weight must also be considered. In feeding by age alone a small child is apt to get too much food and a large child too little food. A child weighing twelve pounds at birth needs more food than a child who at birth weighs but seven pounds.

§ *Is not the child's weight the most reliable guide as to the amount of food he needs?*

In going by this alone, a child who is much below the normal weight as a result of illness or for some other cause, is likely to be underfed. A child of five months weighing nine pounds requires more food than a child of five weeks weighing nine pounds. In this instance the age is probably a more accurate guide than the weight; it is not always possible, however, to feed such a backward child as much as a normal child of the same age.

§ *Does the child's activity affect his need of food?*

This is important and usually not enough considered. A laboring man working out of doors requires much more food than a bookkeeper; and a lively, active, energetic infant needs more food than one who is quiet and placid; sometimes as much as one-half or one-third more. This need is shown in the child's appetite.

§ *Is not then the appetite of the child a proper guide?*

As a rule the appetite of a healthy infant is an excellent guide when a well balanced feeding is given. Some infants, however, will regularly take much more food than they need, if it is offered. If the feeding is unbalanced the appetite for some essential food which is provided in insufficient quantity may lead to overeating.

¶ *In feeding children with disturbed digestion can the same principles be applied?*

Only to a limited degree. For such infants other things must be considered, especially the nature and severity of the disturbance of digestion.

¶ *About how much food does a healthy infant require each day?*

An average daily allowance is three-fourths of an ounce of sugar and fifteen ounces of milk to each ten pounds of weight. Active, energetic infants will require somewhat more than this. During the first three weeks of life somewhat less milk than this proportion should be given.*

* A more accurate estimate of the adequacy of the food intake may be obtained by calculating the number of Calories in the daily food by means of the table given on page 312. This may be compared with the number of Calories needed by an average child of the same age as shown from the chart on page 311. The average baby requires from 45 to 55 Calories per pound of body weight.

It is by no means a necessity to know the number of Calories a day which an infant is receiving. The Calorie measures only the "energy content" of the food; in other words it tells us the amount of body work which can be done by a certain quantity of food. It gives us no information as to whether the food is suitable in other respects, but it is a useful guide in telling us whether an infant is being overfed or underfed.

It will be seen from the chart (page 311) that there is a fairly wide range which can be considered normal for a child of any particular age. This is represented by the shaded band on the chart. Although this chart is meant to apply only to *normal* children, it is a safe rule never to exceed the values given, under any conditions. On the other hand it is sometimes necessary to give less food than that required, particularly if a disturbance of digestion is present.

STANDARD FORMULA FOR NORMAL INFANTS
MADE FROM WHOLE MILK

Quantity Desired (ounces)	Whole Milk,* 3.5% fat (ounces)	Water † (ounces)	Cane sugar or Corn Syrup ‡	Calories per Ounce
3	2	1	1 level teaspoon	20
10	7	3	1 level tablespoon	20
20	14	6	2 level tablespoons	20
30	21	9	3 level tablespoons	20
40	28	12	4 level tablespoons	20

* This may be fresh whole milk or whole milk which has been reconstituted from evaporated or dried milk.

† The amount of water added need not be measured, but after measuring accurately the milk and sugar one may add enough water to bring the total volume up to the quantity required.

‡ When milk sugar or dextrimaltose (see p. 84) are used, the quantities should be larger. Three level tablespoonfuls of dextrimaltose or milk sugar are equivalent to two of cane sugar.

STANDARD FORMULA MADE FROM EVAPORATED MILK

Quantity Desired (ounces)	Evaporated Milk * (ounces)	Water (ounces)	Cane Sugar or Corn Syrup (level tablespoons)
3	1	2	$\frac{1}{3}$ †
10	3	7	1
20	6	14	2
30	9	21	3
40	12	28	4

STANDARD FORMULA MADE FROM DRIED MILK

Quantity Desired (ounces)	Dried Milk ‡ (level tablespoon)	Water (ounces)	Cane Sugar or Corn Syrup (level tablespoons)
3	1	3	$\frac{1}{3}$ †
10	3	9	1
20	6	18	2
30	9	27	3
40	12	36	4

* This should be unsweetened evaporated milk, not the sweetened condensed milk.

† One level teaspoonful is a sufficiently accurate approximation to one-third of a level tablespoonful.

‡ One should be certain that this is dried whole milk rather than a partially skimmed milk preparation.

¶ *In feeding healthy children, if the proper amounts of milk and sugar are given, does it matter whether these are diluted much or little?*

The amount of dilution is important, but less so than the amount of food given. The body requires a certain amount of fluid daily for the most satisfactory nutrition.

Only in exceptional circumstances should the feeding be more concentrated or more dilute than the standard formula given above (page 90). Too great a dilution of the food makes the volume of the feeding too large, overdistends the stomach, and often produces vomiting. If the dilution is insufficient, the child may not receive as much fluid as he requires.

¶ *Can not this extra fluid be given between meals as water?*

Yes. This can be done and under certain circumstances may be desirable (see concentrated feedings, p. 128). It is sometimes difficult, however, to make an infant take any considerable amount of water apart from his food, and the administration of water between feedings is likely to be forgotten. As a general rule it is therefore better to put the water in the food, thus diluting it.

¶ *What is the simplest way of modifying milk for infant feeding?*

To dilute it with water and add sugar according to the principles just laid down.

FEEDING SCHEDULES

¶ *How often should a young baby be fed?*

For the first two or three weeks every three hours by day and once at night (between 10 P.M. and 6 A.M.), or seven times in the twenty-four hours. After that the feeding interval may be lengthened to every four hours, and only six feedings given in twenty-four hours. The night feeding may be omitted at two months, and often before then, only five feedings a day being given. Some infants do quite as well when fed every four hours from birth. The essential thing is the total amount of food given every twenty-four hours.

SCHEDULE FOR HEALTHY INFANTS FOR FIRST HALF YEAR

Approximate Age (months)	Quantity for 24 Hours (ounces)	Quantity for 1 Feeding (ounces)	Feedings in 24 Hours *	Calories for 24 Hours
1	15-25	2¼-4	6 †	300-500
2	20-29	3½-5	6 †	400-580
3	24-32	4½-6½	5	480-650
4	28-35	5½-7	5	560-700
5	31-37	6-7½	5	630-750
6	35- ‡	7-8	5	690-800 ‡

* Feeding interval by day: 4 hours.

† During the first two months one night feeding, between 10 P.M. and 6 P.M., will usually be required.

‡ It is not advisable to give more than 37 ounces a day (750 Calories) as milk formula. Infants who require more food than this may be given solid food (see p. 132).

¶ *Why should not a child be fed more frequently?*

It takes the stomach from two to three hours to digest a feeding of cow's milk. If the meals are too near together the second one is given before the first has been digested; vomiting and indigestion may result. The meals should be far enough apart to give the stomach a little time for rest before the next feeding.

The number of feedings in twenty-four hours, the quantity for a single feeding, and the daily quantity are given in the accompanying table.

This schedule gives the averages for healthy children. The interval is reckoned from the beginning of one feeding to the beginning of the next one.

¶ *Should this schedule be rigidly adhered to?*

Not necessarily. The schedule shows what the *average* normal infant fed on cow's milk will thrive on. It should be used in commencing artificial feeding, and in the great majority of instances no departure from it will be necessary. However, in particular circumstances and with particular infants there may be indications for altering the composition of the food, the quantity, or the feeding interval.

REGULARITY IN FEEDING

¶ *How can a baby be taught to be regular in his habits of eating and sleeping?*

By always feeding him at regular intervals and putting him to sleep at exactly the same time every day and evening.

¶ *When should regular training be begun?*

During the first week of life.

¶ *Should a baby be wakened to be nursed or fed if sleeping quietly?*

Yes, for a few days. This will not be required long, for with regular feeding an infant soon wakes regularly for his meal, almost upon the minute.

¶ *Should regularity in feeding be kept up at night as well as during the day?*

With a very young infant, up to nine or ten o'clock; with older infants, only up to six o'clock; after that time they should be allowed to sleep as long as they will, and the night feeding not given unless they wake for it.

PREPARATION OF THE FEEDING

¶ *What articles are required for the preparation of the feeding?*

Feeding bottles, rubber nipples, rubber bottle caps or cotton for stoppering bottles, an eight-ounce graduated measuring glass, a glass or agate funnel, a bottle brush, a pitcher for mixing the food, a wide-mouth bottle for rubber nipples, and a pasteurizer or some receptacle in which the prepared feeding bottles may be stood in boiling water.

§ *What bottles are to be preferred?*

A cylindrical graduated bottle with a rather wide neck, so as to admit of easy washing, and one which contains no sharp angles or corners. A single size holding eight ounces is quite sufficient for all needs. One should have as many bottles in use as the child takes meals a day. Bottles made of Pyrex glass have the advantage that they are less likely to break when suddenly heated or cooled.

§ *How should bottles be cared for?*

As soon as they are emptied they should be rinsed with cold water and allowed to stand filled with water. Before the milk is put into them they should be thoroughly washed with a bottle brush and hot soap-suds and then placed for ten minutes in boiling water.

§ *What sort of nipple should be used?*

Nipples made of transparent rubber are to be preferred, since they withstand boiling better than those made of black or red rubber. The hole in the nipple should not be so large that the milk will run in a stream, but just large enough for it to drop rapidly when the bottle with the nipple attached is inverted. Many of the nipples sold to-day are provided with holes that are too small. They may readily be enlarged by puncturing them with a large needle heated red hot.

§ *How should nipples be cared for?*

Nipples should always be boiled. After using they should be thoroughly washed with soap and water, each wrapped in a small piece of gauze and put in boiling water for two minutes. They may then be kept in a covered wide-mouth bottle or glass jar until needed.

§ *What directions are to be followed in preparing the food?*

The nurse's hands, the bottles, the table, and all the utensils employed should be scrupulously clean. Milk, sugar, and boiled water are measured out in the quantities which are called for in the formula, and the whole is well mixed. The food for twenty-four hours is always to be prepared at one time, and is either sterilized before being put into the feeding bottles, or else is sterilized in the feeding bottles, according to the directions given elsewhere (see p. 76).

§ *How should feeding bottles be stoppered?*

After the feeding has been poured into them, they may be stoppered with absorbent cotton. This is left in place during the subsequent sterilization and cooling. At feeding time it is removed and replaced by a rubber nipple.

Quite as satisfactory as absorbent cotton are bottle caps made of transparent rubber. These should be cleaned and kept sterile exactly as is described for rubber nipples. They are exchanged for rubber nipples at feeding time.

DIRECTIONS FOR FEEDING INFANTS

§ *How should the infant's bottle be prepared at feeding time?*

It should be taken from the ice box, and warmed by standing in a pitcher of warm water which is deep enough to cover the milk in the bottle; it should then be thoroughly shaken; next, the stopper or cap is removed and the nipple attached; finally, the nurse should see that the hole in the nipple is not too large or too small.

§ *How may the temperature of the milk formula be tested?*

Before adjusting the nipple, a teaspoonful may be poured from the bottle and tasted, or a few drops may be poured through the nipple upon the inner surface of the wrist, where it should feel quite warm but never hot; or a thermometer may be placed in the water in which the bottle stands. A dairy thermometer should be used, and the temperature of the water should be between 98° and 105° F.

§ *What is a simple contrivance for keeping the milk warm during feeding?*

A small flannel bag with a draw string may be slipped over the bottle.

§ *How should an infant be given his bottle?*

An excellent method is to place the baby on the nurse's lap, his head being supported by one of her

arms. It is, however, not necessary to remove the child from his crib. The bottle should always be held by the nurse until it has been emptied; otherwise a young infant readily falls into the bad habit of alternately sucking and sleeping, and often will be an hour or more over his bottle.

It is important that the bottle be held at such an angle that the nipple is always full of milk; carelessness in this respect may be responsible for air swallowing and vomiting.

§ *How much time should be allowed for one feeding?*

Usually not more than fifteen minutes. The bottle should then be taken away and not given until the next feeding time. Under no circumstances should an infant form the habit of sleeping with the nipple in his mouth. A sleepy infant should be kept awake by gentle shaking until the food is taken, or the bottle should be removed altogether.

§ *Should an infant be played with soon after feeding?*

On no account; such a thing frequently causes vomiting and sometimes indigestion. After feeding, the infant may be lifted from his crib, placed over the nurse's shoulder and patted for a moment to allow him to bring up any air that he may have swallowed. He should then be placed in his crib and allowed to lie quietly without rocking, being disturbed as little as possible by either the nurse, the parents, or visitors.

VITAMIN SUPPLEMENTS

¶ *In addition to his milk formula, what foods does a young infant require?*

Every young infant should be given cod liver oil or some substitute (see p. 285) to prevent rickets, and orange juice or some substitute (see p. 283) to protect him from scurvy.

¶ *When and how should cod liver oil be given?*

It should be begun as soon as gain in weight is well established, no later than the third week of life. One teaspoonful a day should be given at first; this may be increased to a teaspoonful three times a day during the next few weeks. It may be given with or between feedings. Infants do not object to the taste of cod liver oil.

¶ *When and how should orange juice be given?*

It should be commenced no later than the third week of life. At first one teaspoonful may be given. This may be gradually increased during the next few weeks until one ounce is given. Although this may be given at feeding time, it is often preferable to give the orange juice and the cod liver oil midway between feedings. Only freshly squeezed orange juice should be used, for juice that has stood for many hours loses much of its potency.

GENERAL RULES FOR GUIDANCE IN
ARTIFICIAL FEEDING

It should again be emphasized that these directions are not intended for sick children or for those suffering from any marked symptoms of indigestion. For such infants special rules are given later.

§ *What are the indications that an infant is receiving the proper amount of food?*

Such an infant appears healthy and contented, he gains weight regularly and suffers from no symptoms of indigestion, i.e., he does not vomit and has good stools. One should not increase the food so long as the child seems perfectly well and is gaining from four to six ounces a week, even though the quantity of the food is somewhat below the average; nor should the food be increased if the child is gaining from eight to ten ounces a week, even if he seems hungry upon occasion. On no account should food be forced. By and large the appetite is a reliable guide to follow if the baby is fed on a standard feeding. In particular circumstances, however, the appetite may prove unreliable (see below).

§ *Under what conditions should the quantity of food be increased?*

Signs of hunger coupled with little or no gain in weight are a pretty certain indication that the infant is being underfed. He may finish his bottle greedily, and often starts to fret and cry some time

before the next feeding is due. Underfeeding may lead to vomiting; an infant who remains hungry after finishing his bottle may continue to suck at the nipple and thus swallow considerable air which may cause regurgitation. Such infants are often thought to be constipated because of their small infrequent stools. In other instances an underfed infant will pass many small stools daily, a condition known as "starvation diarrhea." These symptoms clear up promptly when more food is given.

¶ *How should the quantity of the food be increased?*
As a rule the increase should not be more than half an ounce in each feeding; a more abrupt increase may upset the digestion.

¶ *How rapidly should the food be increased?*
In the early months an increase may be necessary every three or four weeks; later, somewhat less frequently. It is, however, impossible to give a definite rule as to time. A much better guide is the condition of the digestion as shown by the child's appetite, the character of the stools, the sleep, and the general disposition. A very robust infant may need to have his food increased more rapidly than a small or delicate infant.

¶ *Should one be disturbed if, for a few days, there is no gain in weight?*

Not as a rule. Gain in weight is seldom continuous; even healthy, breast-fed infants may have periods of a week or ten days, during the early months, when

the weight remains stationary, with no apparent cause. During the latter part of the first year pauses of two or even three weeks may be met with. If the scales are watched too closely and, because there is only a slight gain in weight or none at all, the food is rapidly increased, an acute disturbance of digestion may be precipitated. The management of infants who fail to gain in weight for some length of time is discussed elsewhere (see p. 106).

¶ *What are the signs that an infant is being overfed?*

The earliest one is that he does not quite finish his bottle. If this happens but once in a few days it is not important, but when it occurs with almost every feeding it is a warning which should be heeded. Such an infant should not be coaxed to take more food when he clearly does not want it (see Loss of Appetite, page 105).

¶ *Does the appetite always indicate when an infant is being overfed?*

Not invariably. The appetite of a perfectly normal infant, fed on a balanced formula, is usually an excellent guide in feeding, but infants who are given an unbalanced food lacking in some essential constituent may develop ravenous appetites and be grossly overfed. Some placid infants who obtain relatively little exercise will habitually take more food than they need.

¶ *What harm results from overfeeding?*

All food taken in excess of what a child can digest becomes a burden to him. The food lies in the stom-

ach or bowels undigested, ferments, and causes wind and colic. When overfeeding is longer continued, serious disturbances of digestion are produced. The infant is restless, fretful, constantly uncomfortable, sleeps badly, stops gaining, and may even lose in weight. Such symptoms may lead to the mistaken conclusion that too little food is given, and it is accordingly increased when it should be diminished.

Even when no disturbance of digestion is produced, overfed infants may become very obese. Their skin is difficult to take care of and they are likely to suffer from eczema and intertrigo.

DISTURBANCES OF DIGESTION

§ *What conditions cause digestive disturbances in infants?*

In some instances the difficulty is with the food or the method of feeding. In many cases the fault is not with the food but with the care that the child receives. Proper clothing, warm feet, regular habits, fresh air, sunshine, quiet, peaceful surroundings, and absence of all nervous excitement are also essential to good digestion. Both while the food is being taken and afterwards the infant should be left quite alone. This is particularly necessary with nervous children.

A further factor of great importance in causing digestive disturbances is the presence of infection. In an infant a respiratory or other infection so mild as scarcely to be noticed may cause a digestive upset

lasting for days or even weeks. It is therefore of the greatest importance to protect infants from colds and other infections.

LOSS OF APPETITE

¶ *What is to be done when a baby who seems well in other respects gradually loses appetite so that he regularly leaves some of his food?*

When the milk is obtained directly from the cows the difficulty may be that it is too rich in fat; it should then be partially skimmed. With the milk sold in cities this is not likely to be the case, unless the mother neglects to invert the milk bottle in order to distribute the cream and consequently obtains a feeding rich in fat.

A more common cause of failure of appetite is overfeeding. The food should be offered at the regular intervals and the quantity somewhat reduced. No greater mistake can be made than to offer food every hour or two to an infant who is not hungry. This only prolongs and aggravates the disturbance. The bottle should be removed in fifteen or twenty minutes no matter how little food has been taken. Continued coaxing for half or three-quarters of an hour does not help matters. Forcing food with a spoon is still worse and is apt to lead to vomiting. With a baby only nine or ten months old it is often best to offer food but three times a day; but water may be given frequently.

In some cases a sore mouth is responsible for refusal

of food; one should inspect the mouth to see if sores are present.

Perhaps the commonest cause of lack of appetite is a mild attack of indigestion, often associated with an infection of some kind. The surest remedy is to give the stomach, for the time, very little work to do. No greater mistake can be made than, because so little is taken, coaxing or forcing food at short intervals through fear lest the child may lose weight. If a reduction in the feeding does not remedy the situation a physician should be consulted.

NO GAIN IN WEIGHT

¶ *What changes should be made in the food of a child who, with all the signs of good digestion, gains very little or not at all in weight?*

As has already been pointed out (see p. 102), normal infants may have periods of a week or more with no gain in weight without apparent cause. Only when the period of stationary weight is prolonged should it occasion concern.

If the child seems hungry the quantity of food may be increased, but it is unwise to coax or force food if the appetite is poor; such an attempt is likely to upset the digestion and cause actual loss of weight. In such instances one may try the effect of a stronger food, rather than increasing the quantity. The concentrated milk feedings described on page 128 may be given a trial. Successful results are often obtained by increasing the carbohydrate of the food. Additional

sugar may be added to the milk formula, or cooked cereal may be given with a spoon. Feedings of this kind should not be continued for more than two or three months. When the gain in weight is well established, one should gradually return to the usual formula.

It is also important to look after the other factors in the child's life—the care, sleep, fresh air and especially the amount of nervous excitement, the result of too much attention by admiring friends and relatives, for with these things rather than with the food the trouble often lies.

Failure to gain weight may be due to an unrecognized illness. If the measures suggested do not correct the situation, a physician should be summoned.

VOMITING

¶ *Why is it that an infant so often vomits some of his food within a few moments after finishing his bottle?*

Such vomiting is often due to causes purely mechanical such as overdistention of the stomach because the child is fed too often or is given too much at a time. It may be because the child is jounced or rocked or handled after feeding.

One of the most common causes is overdistention of the stomach from swallowing of air. This may occur when the hole in the nipple is too small and the baby experiences difficulty in draining it, requiring half an hour or more to finish his bottle. Lack of attention

to the angle at which the bottle is held may be responsible for air swallowing. Underfed babies who are hungry are likely to continue to suck at the bottle after finishing it, and may suck their fingers and other objects and thereby swallow much air.

¶ *How can one distinguish vomiting that is caused by mechanical factors, such as have been mentioned, from vomiting that is due to indigestion or disease?*

As a rule, vomiting from mechanical causes is not associated with loss of appetite. Moreover, the vomiting is likely to come on shortly after feedings, whereas the vomiting associated with indigestion or disease may occur long after the feedings and is usually associated with loss of appetite.

¶ *What can be done to prevent vomiting that is caused by air swallowing?*

One should pay careful attention to the position of the bottle during feeding and make certain that it is removed as soon as the feeding is finished. The hole in the nipple should be large enough to enable the milk to drop out rapidly when the bottle is inverted without shaking; this should allow the child to get his food in ten or fifteen minutes.

After taking his bottle the child should be lifted and placed over the nurse's shoulder to allow him to get up the gas. Sometimes it is well to do this in the middle of the feeding as well as at its close. After the gas has been brought up the child should be placed in his crib and left quiet.

If the baby gives evidence of being hungry, the effect of giving more food may be tried.

§ *What are the changes in the food required by habitual vomiting, regurgitation, or frequent spitting up of small quantities of food long after feedings?*

When milk is obtained directly from the cows or when especially rich bottled milk is fed, the difficulty may be due to the fact that the milk is too rich in fat. Under these circumstances one should remove some of the cream from the top of the bottle before shaking it.

§ *How much cream should be removed?*

At first four ounces may be taken off, after which the bottle is shaken and the balance used in the preparation of the milk formula. After a few days, if the symptoms improve, only three ounces of cream need be removed. After a few days longer only two ounces are removed, then only one ounce is removed, and finally the child is brought back to the formula from whole milk.

Another method of reducing the fat is to feed the baby for a time on a preparation of dried half-skimmed milk (see p. 121).

§ *What changes in the feeding are helpful in any case of vomiting?*

The feeding interval should be lengthened and the quantity given at one time should be reduced. No vomiting baby should be fed oftener than every four

hours, and it may be desirable to make the interval longer than this.

In reducing the quantity of the feeding it is usually best to give a more concentrated food (see p. 128) than the standard milk formula. One can then reduce the quantity of the feeding to two-thirds of the usual amount. Sometimes it is necessary to reduce the quantity of each feeding more than this; it may then be necessary to resume the night feeding for a short time in order to supply enough food in the twenty-four hours.

§ *If the vomiting is severe and is not controlled by the above measures, what should be done?*

Severe vomiting often marks the onset of an acute illness. Vomiting associated with fever or prostration is a serious matter demanding medical attention. In any case, if the vomiting fails to respond to the measures mentioned above, and the infant continues to lose weight for more than a few days, a physician should be summoned.

COLIC AND FLATULENCE

§ *What is colic and what are its causes?*

It is the accumulation of gas in the stomach, leading to abdominal distention with pain and crying and to eructations (belching) of gas and often of sour food or fluid.

In former days when unboiled milk was fed to babies colic was frequent, because the tough curds

formed in the stomach interfered with digestion. Today colic is relatively uncommon. It is usually due to air that has been swallowed either with the food or from sucking various objects between feedings.

The measures described above (see p. 108) for the control of air swallowing will relieve the colicky pain as well.

§ *What is flatulence and how should it be treated?*

Flatulence is the presence of an excess of gas in the intestines. At times this is passed by rectum and causes no discomfort; it may, however, give rise to abdominal distention and pain.

§ *How may flatulence be controlled?*

Flatulence occurs when there is excessive fermentation of food with formation of gas in the intestines, or when the air swallowed passes on into the bowels. The measures described above to prevent air swallowing should be tried. When the trouble is caused by excessive fermentation of food it is sometimes helped by reducing the sugar in the formula and by eliminating any starchy food that is being given, such as cereals, potato, and breadstuffs. If this does not work, a temporary reduction in the food intake should be tried. In some instances a change to a feeding made from fermented milk (see p. 123) is very effective.

Immediate relief from abdominal distention caused by gas can often be secured by giving an enema. A laxative should not be given except under the direction of a physician. At times acute abdominal pain

and distention are caused by some serious condition, and in such instances a laxative may do harm.

CONSTIPATION

§ *What should be done for an infant with chronic constipation?*

Nothing should be done if there is one good stool a day. Such a condition can not be called constipation. Infrequent stools of normal appearance (see p. 191) are often seen in infants who are underfed (see p. 101) and are simply due to the small amount of residue in the intestines. This condition, too, can hardly be called constipation; it disappears promptly when the food is increased; while if injections, suppositories, or cathartics are used to produce freer movements, the function of the bowels is likely to be disturbed.

§ *What are the two kinds of constipation commonly seen in infants?*

In one variety, the stools are normal in consistency and may even be quite soft, but their discharge from the rectum is interfered with by the fact that the anal orifice is unusually small. The baby may show signs of straining and discomfort even when passing a very soft stool. When the little finger is covered with vaseline and inserted in the rectum it does not enter easily and one can sometimes feel a firm ridge a short distance above the orifice. This condition can readily be overcome by gently inserting the little finger, covered with vaseline, into the rectum once a day and holding

it there for a few moments. Forcible stretching should not be employed.

More frequently constipation is due to the fact that the stools are unusually hard in consistency, and are therefore passed with difficulty. This condition is seldom encountered in breast fed infants, but is common among those artificially fed; it should be met by changes in the food.

§ *How may the food be changed to control chronic constipation?*

Constipation can sometimes be controlled by a reduction in the amount of milk and an increase in the amount of sugar in the formula.* The substitution of brown sugar, milk sugar † or "malt soup" extract ‡ for cane sugar may produce the desired effect. The addition of an ounce or two of prune juice to the diet may also prove helpful; this can not take the place of orange juice but must be given in addition to it.

For infants over three months old the introduction of a little solid food may solve the problem. Whole grain (brown) cereals, such as Wheatena and Ralston's are preferable to the white cereals. With older infants, if strained vegetables do not overcome constipation one may substitute finely chopped vegetables,

* The following may be substituted for the standard formula described on p. 90: To make up 20 ounces, use: whole milk, 11 ounces; water, 9 ounces; cane sugar, 3 level tablespoonfuls.

† Three level tablespoonfuls of milk sugar are equivalent to 2 of cane sugar.

‡ Two and one-half tablespoonfuls of malt soup extract are equivalent to 2 of cane sugar.

or a little bran breakfast food may be cooked into the cereal.

¶ *Is constipation dangerous for infants?*

This can hardly be said to be the case. More harm is usually done by overtreating constipation than by ignoring it. The popular belief that infants who remain constipated are absorbing poison into their systems is not well founded. The worst that can happen to a child who remains constipated is that he may develop small fissures of the anus when a hard mass of stool is eventually passed. Occasionally a fecal mass becomes so firmly lodged as to require an enema to dislodge it. Children who are habitually constipated are more susceptible to the development of hemorrhoids (piles).

¶ *Under what circumstances should laxatives be used?*

If the measures mentioned do not control the constipation it may be justifiable to use a lubricant, such as mineral oil, or a preparation of mineral oil and agar. Milk of magnesia, given in doses of one-half to one teaspoonful a day, is a mild laxative and relatively harmless when given to infants. It is a good rule, however, to give laxatives only under the advice of a physician.

¶ *What harm may laxatives do?*

They are chiefly harmful because they develop the laxative habit with the result that in time the bowels will move only under the influence of a laxative.

The more powerful laxatives, unless used with great care, may produce inflammatory changes in the bowel. In appendicitis and other serious abdominal conditions fatalities have resulted from the unwise administration of a laxative. The routine administration of castor oil or some other cathartic for every "stomach ache" is a practice that should be condemned.

ACUTE INFECTIONS

§ *What changes in the food are required by mild infections?*

Some infants may not be upset at all by a cold, a sore throat, or some other mild infection. On the other hand, there are many whose digestion is disturbed. It is therefore wise to reduce the food for a few days under these circumstances. This may be easily done by replacing with boiled water an ounce or two of the food removed from the bottle just before it is given; if the condition persists for several days, a formula containing less milk and more water should be used.

§ *What changes should be made for a serious acute illness?*

For such attacks as those of pneumonia, bronchitis, measles, etc., attended by fever, the food should be diluted. One may give half or two-thirds of the usual quantity of milk, replacing this by water. Food should never be forced in the early days of an acute illness, since the loss of appetite usually means an inability

to digest much food. Water is often needed in more than the usual quantities. It should be offered regularly between feedings.

¶ *What immediate changes should be made in the food when the child has an acute attack of gastric indigestion with repeated vomiting, fever, pain, etc?*

All milk should be stopped at once, and only boiled water given for ten or twelve hours; afterward barley water or broth may be tried, but no milk for at least twenty-four hours after the vomiting has ceased. When beginning with modified milk, feedings made from skimmed or partially skimmed milk as described on page 121 should be used for a few days.

DIARRHEA

¶ *What changes should be made for an attack of diarrhea?*

For mild attacks (only three or four passages daily) one should omit any solid food that is being given and replace one-half the quantity of milk in the formula by water. If the diarrheal attack is more severe and attended by fever and foul-smelling movements of greater frequency, all milk should be stopped immediately, and the diet mentioned above under the head of acute disturbances of the stomach should be employed.

In resuming milk feeding it may be desirable to substitute protein milk (see p. 125) for the standard formula or to add powdered curd (see p. 126).

A further discussion of diarrhea is given elsewhere (see p. 279).

§ *If the food has been reduced for a disturbance of digestion, how should one return to the original strength?*

While the reduction of the food should be immediate and considerable, the increase should be very gradual. After a serious attack of acute indigestion, when beginning with milk again, it should not be made more than one-half the original strength, and from ten days to two weeks should pass before the child is brought back to his original food, which should be done very gradually. It is surprising how long a time is required for young infants to recover completely from an attack of acute indigestion, even though it did not seem to be very severe.

FEEDING DURING HOT WEATHER

§ *What modifications of the food are required in very hot weather?*

The important things are to keep the child as cool as possible by removing all clothing but a diaper,* and to offer water freely between feedings. If this is done it is unlikely that the child's digestion will be upset. Since the appetite may show some reduction during hot spells, it is usually advisable to dilute the food to some extent.

* An excellent device for cooling the nursery is an electric fan playing over a cake of ice.

COMMON MISTAKES IN MILK
MODIFICATION AND INFANT FEEDING

1. A very common one is the habit of watching the weight too closely, and the conviction on the part of the mother or nurse that, because a child is not so large nor gaining so rapidly as some other infant of the same age, more food should be given. This is a common cause of overfeeding.

2. The milk formula is changed too frequently. It is not possible to modify milk in such a way as to relieve every trivial discomfort or disturbance an infant may have. If an infant appears healthy, has good color, and is making a satisfactory gain in weight, one should be content.

3. When symptoms of indigestion occur, the food is not reduced quickly enough. Indigestion usually means that the organs are, for the time, unequal to the work imposed. If the food is immediately reduced by one half, the organs of digestion soon regain their power and the disturbance is short. In every case the amount of reduction should depend upon the degree of the disturbance.

4. The food is increased too rapidly after some disturbance of digestion. If, in an infant three or four months old, an attack of acute indigestion occurs, the food should seldom be given again in full strength before one or two weeks. Otherwise it generally happens that the attack of indigestion is very much prolonged and much loss in weight occurs.

5. The cod liver oil or orange juice is omitted be-

cause it is thought to be disagreeing with the baby, and rickets or scurvy develops. It should be realized that all artificially fed babies must have these vitamin supplements from earliest infancy onward. They should be started no later than the third week of life (see p. 100). In the rare instances of infants who can not take cod liver oil or orange juice, a substitute (see p. 283) must be given.

SPECIAL FEEDINGS AND THEIR USES

The feedings described below are for the most part not needed for normal infants, and it is not essential that the mother or nurse familiarize herself with them. These feedings are, however, in use by physicians, and some of them are advertised to the public. Information about them is therefore included here for the mother or nurse to refer to should the occasion arise.

HOMOGENIZED MILK

¶ *What is homogenized milk?*

It is milk which has been forced under high pressure through a fine aperture, a process which breaks up the fat particles into very small fragments. As a result, they do not tend to rise to the surface and form a cream on standing, as does ordinary milk.

¶ *What advantages has homogenized milk?*

When homogenized milk is taken raw or pasteurized, the curd formed in the stomach is considerably softer

than that of cow's milk which has not been so treated. For this reason homogenized milk is sometimes known as "soft curd milk." In former times, when raw milk or milk that had been merely pasteurized was fed to babies, homogenized milk possessed a real advantage, since it avoided "curd indigestion." But since it has become the universal practice to employ either boiled milk, dried milk, or evaporated milk, all of which procedures modify the curd and make it readily digestible, this advantage of homogenization no longer exists.

The failure of homogenized milk to cream on standing avoids the necessity of having to invert the bottle and redistribute the cream before making up the infant's formula. This is a disadvantage upon occasions when it is desired to separate some of the cream.

Recently a product known as "vitamin D homogenized milk" has been introduced for infant feeding in many cities. This milk, in addition to being homogenized, has been reinforced with vitamin D. The use of various "vitamin D milks" is discussed elsewhere (see p. 286). Although such milks afford varying degrees of protection against rickets, they do not provide a quantity of vitamin equivalent to the standard recommended dose of cod liver oil; * hence it is necessary to give some supplement containing vitamin D even when using one of these reinforced milks. There is, however, no objection to the

* 3 teaspoonfuls a day.

use of such a milk, provided its limitations are realized.

SKIMMED MILK

§ *Of what use is skimmed milk in infant feeding?*

In some infants with indigestion and a tendency to vomit, the tendency may be aggravated by the quantity of fat present in standard whole milk formulas. Under these circumstances it may be advantageous to reduce the fat in the formula. Complete removal of the fat is not necessary, but a feeding made from half-skimmed milk is often beneficial.

§ *How may such a feeding be prepared?*

If fresh bottled milk is used, the bottle should be allowed to stand until the cream has risen. Three or four ounces of cream may then be poured off, after which the bottle is shaken and the balance used in the preparation of the formula.

A number of dried half-skimmed milk preparations are available, such as Dryco, Alacta, Glaxo, and Mammala, and milk formulas may be conveniently be prepared from one of these. It must be borne in mind that powdered half-skimmed milk is lighter than powdered whole milk. In reconstituting the original milk one must use a larger volume of the powder.*

* To reconstitute 8 ounces of the original half-skimmed milk, one should take from 6 to 8 level tablespoonfuls to 7 ounces of water. The exact quantity varies slightly with different preparations, being stated on the package in each case.

§ *Are there any objections to the use of half-skimmed milk?*

It is true that valuable vitamins are lost in the cream that has been removed, but if cod liver oil or some substitute is given routinely this need not be considered. A more important consideration is the fact that some of the energy value has been removed and that half-skimmed milk provides only sixteen calories to the ounce instead of twenty to the ounce as is the case with whole milk. In the case of babies with digestive disturbances some degree of underfeeding is desirable. But if half-skimmed milk is to be used for feeding normal infants, as is sometimes done, it is necessary to use either larger quantities of milk or more sugar than is ordinarily given.

BUTTERMILK

§ *What is ordinary buttermilk?*

It is sour or fermented milk from which most of the fat has been removed.

§ *How is it prepared and fed?*

It may be purchased at most dairies, and from some it may be obtained with any concentration of fat specified. It may be fed as such or diluted with water and sugar added.

§ *What are the advantages of buttermilk?*

Chiefly that the fat has been removed, a factor with which some children with indigestion have difficulty.

The indications for its use are practically the same as those for the use of partially skimmed milk. It may also have some advantage in controlling flatulence (see p. 111).

FERMENTED MILK

¶ *What is fermented milk?*

It is whole milk which has been fermented or soured artificially. It is sometimes spoken of as "whole buttermilk" or "fermented lactic acid milk."

¶ *How is it prepared?*

It can be purchased at some dairies and is also available in dried form. It may be made in the home by fermenting sterilized *whole* milk with various ferments sold in tablet or liquid form at most drug-stores. The sterilized milk should be heated to 98° F. for fifteen minutes; the ferment is then added and the milk placed in a fireless cooker or a vacuum (thermos) bottle overnight. It is then refrigerated as usual.

¶ *Of what use is fermented milk?*

It may be useful in some cases of indigestion accompanied by diarrhea. It is sometimes helpful in controlling flatulence. It may be substituted for ordinary whole milk in the standard formula.

LACTIC ACID MILK

§ *What is lactic acid milk?*

It is whole milk to which a certain amount of lactic acid has been added.

§ *How is it prepared?*

It may be purchased in evaporated or dried form or it may be prepared in the home as follows: Two teaspoonfuls of pure lactic acid, which can be obtained at any drug-store, are added to a quart of sterilized whole milk. The milk should be ice cold. The lactic acid should be added gradually, drop by drop, with constant stirring; otherwise the milk will coagulate in lumps too large to pass easily through the hole in the nipple.

§ *What advantages has lactic acid milk?*

The addition of lactic acid to milk curdles the milk before it is fed and prevents the formation of tough curds in the stomach which in former days were often responsible for "curd indigestion." For this reason, lactic acid milk was for years widely used in feeding normal infants. In recent years, since it has been found that curd indigestion can readily be controlled by the use of dried or evaporated milk, and by boiling all fresh milk given to infants, the use of lactic acid milk has greatly declined. The added labor and expense in preparing the lactic acid milk scarcely seem justified.

Claims have been made that lactic acid milk tends to prevent diarrheal disease, but this has not been substantiated. It is possible that lactic acid milk may have some virtue in feeding infants with diarrheal disorders, and it is used by some physicians with that possibility in mind.

PROTEIN MILK

§ *What is protein milk?*

It is a fermented milk enriched by the addition of curd (casein), which is sometimes fed to infants suffering from diarrhea. Its chief peculiarity is its relatively high content of protein.

§ *How is it prepared?*

It may be purchased in dried form or may be prepared in the home. One quart of whole milk warmed to blood heat is coagulated by rennet (see p. 160); the whey is then strained off through cheesecloth and thrown away. The dry curd is carefully rubbed through a fine sieve, with the gradual addition of enough ordinary buttermilk to bring the whole up to one quart.

§ *How is it fed?*

It may be fed as prepared or with the addition of sugar (2 level tablespoonfuls of cane sugar for each 20 ounces).

¶ *What advantages has protein milk?*

Since infants with digestive disturbances are likely to have more difficulty in digesting fat and carbohydrate than they have in digesting protein food, the purpose is to provide more of a food which such infants can digest and less of materials which they digest poorly.

The passage of much casein into the stools tends to produce constipated stools. When infants with diarrhea are fed protein milk the appearance of the stools is usually improved although the infant himself may not show any corresponding improvement.

¶ *Are there objections to the use of protein milk?*

As a temporary feeding in cases of diarrhea and in certain cases of chronic indigestion, protein milk may be a useful food. It should not be used indefinitely, for the proportions of the different foodstuffs in it are not the best for normal subjects.

CURD (CASEIN)

¶ *How may curd be given to infants?*

A number of dried curd preparations are available, such as Casec, Larosan, Protolac, etc. These may be added to the milk formula in suitable quantities following a physician's directions, when it is desired to increase the casein of the food. Curd may also be made in the home by coagulating fresh milk with rennet, after which the whey is strained off through

cheesecloth and discarded. The moist curd may then be added to the milk formula.

¶ *Under what conditions are additions of curd useful?*
The usefulness of added curd is exactly the same as that of protein milk. Curd is also used to enrich the formulas of premature infants who require relatively more protein in their food.

GOAT'S MILK

¶ *Does goat's milk possess any special advantages?*
Very rarely an infant can not take cow's milk at all but may be able to take goat's milk. Apart from these very exceptional cases it appears that goat's milk has no special advantage over cow's milk as an infant food.

Goat's milk may be had in some foreign countries where it is impossible to obtain any fresh cow's milk. When fresh and produced under cleanly conditions it seems to be quite as satisfactory as cow's milk. The canned evaporated goat's milk is also satisfactory. When used for infants goat's milk requires the same modification as cow's milk.

MILK-FREE FOODS

¶ *Under what circumstances are milk-free foods indicated?*

They are indicated only in the rare cases of infants who are hypersensitive to milk and can not take it (see Allergy).

§ *Of what are such foods composed?*

Most of them are prepared from soy bean flour; such preparations are Sobee, Mullsoy, and Kreme-o-soy. Nutramigen is a completely predigested food prepared largely from casein but containing no material capable of causing reactions in an allergic subject.

§ *When should such preparations be used?*

They should be used only under the direction of a physician.

CONCENTRATED FEEDINGS

§ *What is meant by a concentrated food?*

One which is stronger than the standard milk formula; in other words, one which contains less water as a diluent.

§ *Under what circumstances is such a food indicated?*

Whenever it is desirable to reduce the volume of the feeding, as may be the case with babies who vomit. Also, when one wishes to give more food without unduly increasing the volume of the feeding. Certain infants will not gain in weight until a relatively large amount of food is given; this is true of many premature infants and of some who are convalescent from acute illnesses; others who are exceptionally active require more food. By concentrating the food one can give more of it and yet avoid the risk of upsetting the stomach, which might occur if the volume were increased.

¶ *How may concentrated feedings be prepared?*

They may be made from whole milk, evaporated milk, or dried milk. From whole milk, whether this be fresh milk, fermented milk or lactic acid milk, a suitable feeding can be made simply by adding one level tablespoonful of cane sugar to each six ounces of milk.*

¶ *How are concentrated feedings to be prepared from evaporated milk?*

A suitable formula is the following:

Evaporated milk.....8 ounces
 Cane sugar3 level tablespoonfuls
 Add water to make the volume 18 ounces.*

¶ *What is a suitable formula for a concentrated feeding made from dried milk?*

The following formula may be used:

Dried whole milk.....3 level tablespoonfuls
 Cane sugar.....1 level tablespoonful
 Add water to make the volume 6 ounces.*

This may be made up in multiples if larger quantities are desired.

¶ *In what quantities should these concentrated feedings be fed?*

These formulas are about one and a half times as strong as the standard formula. When one's object is to reduce the volume of the feeding, rather than to

* Such a feeding provides 30 calories to the ounce instead of the 20 calories per ounce provided by the standard formula.

increase the total amount of food, one should give about two thirds as much as is recommended in the schedule on page 93. Larger amounts may be given when the purpose is to supply more food.

§ *What are the dangers of concentrated feedings?*

The only real objection to concentrated feedings such as have been described is that the infant may not receive enough fluid. An effort should therefore be made to give additional water regularly between feedings; this is of particular importance in hot weather.

COMMERCIAL BREAST MILK

§ *If a mother can not nurse her baby should breast milk be purchased?*

Breast milk dairies are maintained in a number of American cities, in the belief that human milk possesses peculiar protective and nutritive qualities for the human infant which are not possessed by other milks. It must be admitted, however, that no such properties have ever been demonstrated. The limited data available on babies who are fed breast milk by bottle fail to indicate any superiority over babies fed on cow's milk under comparable conditions of intelligent care and supervision. It would appear that the lower mortality among breast fed infants is due to breast *feeding* rather than to breast *milk*. Breast feeding is a more fool-proof method and is for that reason to be encouraged. There would seem to be little reason

to purchase breast milk when feeding is to be done from a bottle in any case.

PROPRIETARY INFANT FOODS

¶ *Are the proprietary imitations of breast milk to be recommended?*

A number of proprietary milk modifications are marketed in dried or evaporated form, such as S.M.A., Similac, Bresto, and Humanized Milk, for which claims are made that the milk has been modified in such a way as to make it resemble breast milk more closely than the usual cow's-milk modifications. These preparations are all satisfactory foods and have been used with success in infant feeding. There is no objection to their use, but they should not be used under the impression that they are more valuable or more digestible than ordinary cow's milk mixtures. They possess no peculiar virtues that justify their additional expense.

¶ *What other canned modified milks are available?*

In addition to those mentioned above which purport to be imitations of breast milk, there are other modified milk preparations which are sold in cans, such as Lactogen and Biolac. These, too, are altogether satisfactory for infant feeding. Their use involves additional expense, but they avoid the necessity of measuring and adding sugar to the formula and to that extent are labor-saving.

§ *What other types of proprietary infant foods are available?*

In addition to the complete milk foods mentioned there are incomplete milk foods and carbohydrate foods.

The incomplete milk foods contain a certain amount of dried milk, but consist largely of malt sugar. "Malted" milks and Nestlé's Food are examples of this class.

The carbohydrate foods include Mellin's Food, Ridge's Food, Robinson's Patent Barley, and Imperial Granum.

Both the carbohydrate foods and the incomplete milk foods are suitable only for additions to milk. In some instances they have been fortified with vitamins, but they possess no mysterious virtues and their use always involves additional expense.

Precooked cereals for infants, containing vitamin and mineral supplements, have been widely used for feeding infants in recent years. Examples of such are Pablum, Cerevim, and Gerber's Cereal. Their use is discussed under the administration of solid food (see below).

THE FEEDING OF OLDER INFANTS

THE INTRODUCTION OF SOLID FOOD

§ *Of what advantage are solid foods?*

They serve several purposes. When properly cooked and prepared, many of them are valuable sources of

vitamins. Certain vegetables, meats and egg contain iron, an element of which milk contains very little; if iron-containing foods are postponed until the latter part of the first year anemia is likely to develop. Solid foods also have an educational value; by starting them early the child becomes accustomed to being fed with a spoon and does not resent this procedure as he may at a later age. Finally, solid foods are valuable in preventing constipation; they provide the indigestible "roughage" which stimulates the action of the bowels.

¶ *At what age should solid foods be introduced?*

The practice followed by different physicians in this country varies widely. Some begin as early as one or two months of age, a procedure that may well be described as "stunt" feeding. Others who are conservative wait until seven or eight months of age. As a general rule it is wise to start them at about five months of age, although in particular circumstances it may be desirable to start them earlier or later than this. When the introduction of solid foods is postponed beyond the age of five months it is wise to offer vegetable water (see p. 156) or beef juice (see p. 158) from time to time in place of plain boiled water between meals.

¶ *Are there any objections to the use of solid foods before the fifth month of life?*

When properly subdivided so that an infant without teeth can digest them there is no objection to their forming a small portion of the diet. They are, how-

ever, unnecessary in the early months and add to the labor of caring for the infant.

¶ *In what order should solid foods be added to the diet?*

This again is a somewhat arbitrary matter in which practice differs considerably. A satisfactory schedule for starting different foods is as follows:

At 5 months: Cereal

At 5½ months: Vegetable

At 6 months: Fruit

At 6½ months: Egg

At 7 months: Meat

At 8 or 9 months: Breadstuffs

¶ *How may cereals be begun?*

One may commence with the refined (white) cereals, such as Farina or Cream of Wheat; later on the whole-grained (brown) cereals may be given. The latter are slightly more laxative in their action but are more valuable as sources of vitamins. These cereals should be well cooked (see p. 154). The precooked cereals designed for infants, which are fortified with vitamins and minerals (notably iron), are convenient because they require only the addition of water or milk.*

Cereals should be fed with a spoon, with some of the milk of the bottle served on them. At first one tablespoonful may be given, usually at the 10 A.M. feeding. The amount is gradually increased until two or three tablespoonfuls are given twice a day (at the

* Such products are Pablum, Cerevim, Gerber's Cereal, and a number of others.

10 A.M. and 6 P.M. feedings). As the amount of cereal in the diet is increased, the sugar in the formula may be reduced, and by the time the infant is taking five or six tablespoonfuls of cereal a day the sugar of the formula should be eliminated altogether, all the carbohydrate being added in the form of cereal.

§ *How may vegetables be commenced?*

White vegetables, such as potato, rice, spaghetti, or macaroni may be substituted for cereals at any time. They should be well cooked and mashed.

*Green vegetables** are important foods on any mixed diet and may well be introduced shortly after cereals are started. Among the best are carrots, spinach, beet-tops, asparagus tips, string beans, and young peas. The vegetables should be well cooked (see p. 157) and strained. The canned strained vegetables prepared for infants are satisfactory and convenient products to use. Only one vegetable should be introduced at a time. One or two teaspoonfuls may be given at first and the quantity gradually increased until one or two tablespoonfuls are given. If the cereal is given at the 10 A.M. and 6 P.M. feedings, it is preferable to give the vegetable at a different time, for example at the 2 P.M. feeding.

§ *How may fruits be given?*

In addition to the daily orange juice, one may give cooked fruits which have been properly mashed and

* The term "green vegetables" is used not only to include those which are actually green in color, but other colored vegetables such as carrots, beets, tomatoes, cabbage, squash, etc.

strained, such as apple sauce and the pulp of prunes, peaches, pears, or apricots. These are of particular value for their laxative action. Ripe bananas are useful foods; they may be given cooked or raw.

Fruit juices, cooked fruits, and vegetables all supply considerable quantities of water to the infant. As these come to be taken in increasing quantities, the need for supplying additional water in the milk formula disappears. By the time the infant is seven months old a special formula is no longer necessary: undiluted boiled milk may be given, the additional fluid being supplied in the fruit and vegetables, and the additional carbohydrate being given as cereal instead of sugar.

¶ *How may eggs be introduced?*

The yolk of a hard boiled egg, finely grated, may be tried at first. Certain infants are very sensitive to the white of egg and are made acutely ill when any appreciable quantity of it is given. The small amount of egg white which sticks to the yolk will not, however, cause any serious difficulty. If the yolk of the egg gives no sign of disagreeing with the infant, one may add the white, in small quantities at first. A "coddled" egg is an excellent food for infants and may be given two or three times a week during the latter months of the first year, meat being given on alternate days.

¶ *How are meats to be given?*

Scraped beef or liver mash (see p. 159) may be introduced first, in quantities of one teaspoonful a day,

which may gradually be increased. Finely chopped meats—either beef, veal, liver, lamb, or bacon—may be given, toward the latter part of the first year, to infants who are able to do some chewing. Boiled or baked fish, such as cod, halibut, and haddock, may be substituted for meat. No fish from which the bones can not readily be removed should be given.

¶ *How may breadstuffs be given?*

Toast, crackers, or zwieback, when soaked in hot water or milk, may be substituted for cereal at any time. The age at which such products are given dry will depend somewhat on the number of teeth. Between eight and ten months the average child can nibble at a small piece of thin crisp toast.

¶ *Are not broths useful in feeding infants?*

Meat and vegetable broths which have been strained are readily digestible but have relatively little food value unless they are cooked with milk. Milk broths may, however, be substituted for some of the milk of the diet.

¶ *In introducing solid foods what general rules should be followed?*

1. The new article of food should be offered at the beginning of a meal when the child is hungry.
2. Only a small quantity should be given when it is first offered.
3. Not more than one new article of food should be introduced at a time; otherwise, if the food disa-

grees it may be impossible to decide which of several articles fed was at fault. After starting one food it is well to wait three days at least before adding another, in order to make sure that the new food is not disagreeing with the infant.

4. When introducing a solid food one should reduce by a corresponding amount the quantity of milk given at that meal. Failure to observe this precaution may result in vomiting merely because the volume of the feeding has been unduly increased rather than because the new article of food is disagreeing.

¶ *If an infant refuses to take a new food that is offered to him, what should be done?*

It is not necessary to make an issue of the matter at once. One may wait a day or two and try again, when he is more hungry. If only a small amount is taken it is probable that he will take more another time.

If, however, the baby refuses entirely to take any of the food it may be necessary to withhold other food for several feedings until he becomes sufficiently hungry to take the article in question.

¶ *How should the feeding schedule be arranged when solid food is given?*

As a rule five meals a day are given throughout the latter half of the first year. It is usually more convenient at the early morning and late evening feedings to give milk only, the additional food being divided among the other three meals. Many babies can, however, be trained to go without the 10 P.M.

feeding at six or seven months of age, and by the time they are eight or nine months old can be adapted to a schedule of three meals a day. This may prove a convenience to the mother.

¶ *How should a diet be arranged for a normal child of nine months who is to be fed five times a day? **

- 6.30 A.M. Whole milk, 7 ounces.
- 8.30 A.M. Orange juice, 1 ounce.
- 10 A.M. Cereal, 2 to 3 tablespoonfuls.
Milk, 7 ounces (some of this on cereal).
Crisp toast or zwieback, 1 piece.
- 2 P.M. Scraped beef or liver mash, 1 teaspoonful, or
1 soft egg.
White vegetable (potato, rice, etc.), 2 table-
spoonfuls.
Green vegetable (mashed and strained), 1 to
2 tablespoonfuls.
Milk, 4 ounces.
- 6 P.M. Same as 10 A.M.
- 10 P.M. Same as 6.30 A.M.

¶ *How should a diet be arranged for a normal child of nine months who is to be fed three meals a day?*

- 7.30 A.M. Cereal, 3 tablespoonfuls.
Milk, 8 ounces (some of it on cereal).
Egg or bacon or mashed banana.

* Provision must also be made for the daily requirement of vitamin D. This may be done by giving 1 teaspoonful of cod liver oil with each of the three major meals or by giving a single dose (20 drops) of some concentrated fish oil, such as percomorph liver oil or Navitol.

- 10 A.M. Orange juice, 1 ounce.
Vitamin D.*
- 12.30 P.M. Scraped beef or liver mash, 1 tablespoonful,
or 1 egg.
White vegetable, 1 tablespoonful.
Green vegetable, 1 tablespoonful.
Junket or gelatin dessert, 1 tablespoonful.
Milk, 6 ounces.
- 6 P.M. Cereal, 3 tablespoonfuls.
Milk, 8 ounces (some of it on cereal).
Cracker or piece of toast, lightly buttered.
Cooked fruit, 1 to 2 tablespoonfuls.

¶ *How may an infant be adapted to a schedule of three meals a day?*

One should first try to omit the 10 P.M. feeding. If the infant must be wakened to take this, it is likely that the bottle can be omitted without difficulty. The amount of milk formerly given in the 10 P.M. feeding can be divided among the other feedings. By the time one is ready to try this, the baby will no longer be on a milk formula, but will be taking whole milk.

In changing from a four-meal to a three-meal schedule it is, of course, necessary to give somewhat larger meals. But if the baby's appetite does not respond to the longer intervals between meals, and his weight becomes stationary, it is easy to go back to the old schedule. In any event, a normal baby should be

* A convenient method of supplying the daily requirement of vitamin D in a single dose is by the administration of 20 drops of fish oil concentrate (such as percomorph liver oil or Navitol), which is approximately 100 times the potency of standard cod liver oil.

put on a three-meal-a-day schedule when he reaches the end of his first year.

In case a baby who has been accustomed to a 6 or 6:30 A.M. feeding continues to wake up at that time and cry with hunger, one may give him his orange juice at that time instead of between breakfast and lunch.

WEANING FROM THE BOTTLE

¶ *When should a child be weaned from the bottle?*

With children who are not ill, weaning from the bottle should invariably be begun by the age of nine or ten months; after a child is twelve months old the bottle should not be given at all.

¶ *Is there any objection to the child's taking the bottle until he is two or three years old?*

There are serious objections. Children who are allowed to continue the bottle form the "bottle habit" and frequently will refuse all solid food as long as the bottle is given. An exclusive diet of milk for children of two or three years often causes serious anemia and malnutrition.

¶ *How should a child be trained to do without the bottle?*

This is usually easy if it is begun early. The milk should be poured into a tiny glass or cup, and little by little the child is taught to drink or to take food from a spoon; at first only a small portion of the food is taken in this way, the balance being given from the

bottle; but in a few weeks the average infant learns to drink from a cup without difficulty.

If the child has been allowed to have the bottle until two or more years old, the only effective means of weaning is through hunger. The bottle should be taken away entirely, and nothing allowed except milk from a cup until the child takes this willingly. Sometimes a child will go an entire day without food, occasionally as long as two days, but one should not be alarmed and yield. This is a matter of the child's will, not his digestion, and once he has been conquered there is seldom any further trouble.

FEEDING DURING THE SECOND YEAR

If the general directions given in previous pages have been followed, the infant who has completed his first year will be eating three meals a day. He will have learned to eat cereals, vegetables, fruits, meats, and egg. He will have learned to drink from a cup and will have acquired some experience in chewing.

¶ *What changes may be made in the feeding during the second year?*

A greater variety of foods may be given and larger quantities offered. As the child's ability to chew increases, the fine subdivision of his food can gradually be dispensed with.

In introducing any new article of food, however, it is very important to observe the rules which have been stated above (see p. 137).

¶ *What meats may now be given?*

In addition to beef, veal, mutton, and liver, one may give poultry, sweetbreads, and a greater variety of fish provided it is well boned. The meat should be tender and well cooked. Only the lean meat should be given, the skin, fat and gristle being carefully removed. The state of subdivision in which it is offered will depend upon the infant's teeth. If the molar teeth are not yet erupted, all meat should be finely ground. When the four first molars are present (these usually erupt between fourteen and sixteen months of age) some effective chewing can be done, but it is only when both first and second molars are present (the latter part of the second year or early part of the third year) that really efficient mastication develops. Pork is likely to be tough and is therefore best postponed until the third year.

¶ *How long is it necessary to continue straining the vegetables?*

This depends somewhat on the condition of the bowels. If the bowels are inclined to be loose, only strained vegetables should be given until the first four molar teeth have erupted. But if there is a tendency toward constipation, the use of unstrained vegetables will do much to correct this. They may be given even before the twelfth month, but they should be thoroughly mashed or finely chopped. The canned finely chopped vegetables prepared for infants are convenient for use.

§ *What vegetables may be given during the second year?*

Nearly all the common vegetables may be given in cooked form, with the exception of corn and cucumbers. In addition, raw vegetables may be added as the infant's ability to chew increases. Raw tomatoes, grated carrots or cabbage, finely chopped lettuce, or celery may be given, provided that no looseness of the bowels develops.

§ *Should fried foods be given to young children?*

There is undoubtedly a prejudice against their use, and parents are often cautioned to avoid them. It is true that an abundance of grease may take the edge off a child's appetite. Furthermore, the hard, partly charred crusts that are likely to form on the outside of foods when they are fried may be difficult to digest. However, if the frying is done in such a way as to avoid these difficulties—in other words, if the excess of grease is poured off and the charred matter removed—fried foods are quite as digestible as those cooked by other means.

§ *Should gravies and sauces be fed to young children?*

It has long been believed that these were likely to cause indigestion, but this belief has little basis in fact. Both butter and flour can readily be digested by healthy infants, even the youngest. The objection to the use of gravies and sauces is that they are likely to be used in too liberal amounts, their quan-

tity often exceeding that of the accompanying food. Under these circumstances the diet tends to become unbalanced with an excess of fat and starchy food and not enough protein. It is for this reason that the caution against gravies and sauces is, on the whole, a wise one. There is, however, no objection to their use in moderation if it is clear that a child is getting enough protein food in the form of meat, egg, and milk.

Children with digestive disturbances often tolerate fats and starchy foods badly, and if the digestion is in any way upset one should avoid them.

¶ *What fruits may be given?*

In addition to fruit juices, strained cooked fruits, and bananas, one may give many raw fruits during the latter part of the second year when the latter can be chewed. Peaches, pears, and apples may be given with the skins removed, as well as raspberries and strawberries. It is important that the fruit be fully ripe, for incompletely ripe fruit is likely to cause a digestive upset. Melons are best avoided, as they are often sold in an unripe condition. Finely chopped whole oranges may be given when the molar teeth have erupted, but sliced pineapples are difficult to chew and should be avoided.

¶ *How much milk should be given?*

It is not necessary that every child receive a quart of milk each day. Many children do quite as well when given a pint or a pint and a half. The quantity should

not be less than a pint, however. If there is difficulty in getting this much down it may be cooked in the cereal or given in the form of soups.

¶ *How long should sterilization of the milk be continued?*

It is advisable to continue it throughout the second year. If there is any reason to suspect the purity of the milk, it may be continued longer. The taste of boiled milk is no hardship to a child who has never known any other kind of milk.

¶ *How long should boiling of the infant's water be continued?*

Throughout the second year, as a rule, and longer if the purity of the water supply is questionable. The water supply for the day should be boiled and then cooled. It should not be allowed to stand in the room, but fresh water should be put in the infant's cup and offered to him regularly between meals.

¶ *How long should the daily supplement of cod liver oil be continued?*

During the second year, the cod liver oil may be reduced to two teaspoonfuls a day in the winter months and one a day in the summer months, provided the infant is taking yolk of egg several times a week. If one of the specially fortified D milks is being taken, cod liver oil can be dispensed with altogether at this time.

It is advisable to give children some form of vitamin

D in addition to the minute quantities present in ordinary foods, throughout childhood (see p. 286).

¶ *How long should the daily orange juice be continued?*

This should certainly be continued throughout the second year, and preferably thereafter. It becomes less important, however, as the quantity of green vegetables taken increases.

¶ *What is a suitable diet for an infant of eighteen months?*

On waking Orange juice, 2 to 3 ounces.

7.30 A.M. Cereal, 3 to 5 tablespoonfuls, served with milk.

A soft egg.

Milk, 8 ounces.

Slice of thin toast with butter.

12.30 P.M. Ground meat (beef, veal, lamb chop, etc.) 1 to 2 tablespoonfuls.

White vegetable, served with butter, 2 tablespoonfuls.

Green vegetable, finely chopped, 2 to 3 tablespoonfuls.

Stewed fruit, 1 to 2 tablespoonfuls, or ripe banana.

Milk, 8 ounces (if this quantity seems to interfere with the appetite for solids, one may give half of it between meals).

6 P.M. Cereal, as at breakfast (a white vegetable may be substituted for this at times to give variety).

Soft cooked egg or green vegetable (if hungry).

Stewed fruit, 1 to 2 tablespoonfuls.

Milk, 8 ounces.

Slice of toast or cracker with butter.

It should be borne in mind that the quantity of food required by different children of this age varies considerably. Some may require more and some less than those given above. The appetite of the child is a safe guide to follow as far as the quantity of food is concerned, but it is important to see that he takes a balanced diet and is not allowed to make a meal largely of one food. There is little danger in giving a hungry child extra meat or vegetables, but one should avoid making the increases exclusively in the starchy food.

Some variation in the appetite from day to day is to be expected and need occasion no concern.

FEEDING DURING THE THIRD YEAR

¶ *What changes may be made in the diet during the third year?*

Early in the third year the child will have acquired all the eight molar teeth of the deciduous set and can be counted on to do considerable chewing of his food. He can now masticate most of the foods of an adult diet with the exception of tough meats, corn, and pineapple. The fine chopping of the food may be replaced by a coarser subdivision.

The general plan of the meals and the proportion of the different types of food given is the same as in

the second year, but the quantities taken will be larger, and a larger variety of foods may be offered.

¶ *What foods may be given during the third year?*

One may choose from the following:

Cereals and breadstuffs:

Cooked cereals, any kind if well cooked.

Prepared precooked cereals, any kind excepting the pure bran cereals which are indicated only for constipation.

Bread, any kind. It should be toasted, and preference should be given to whole wheat or graham breads.

Crackers may be used in place of bread.

White vegetables:

Potato, rice, hominy, macaroni, spaghetti, noodles.

These may be cooked in any way that is desired and served with butter.

Meats, fish, eggs:

Beef, veal or lamb may be given as roast or in stew.

Liver, sweetbreads and kidney (this last must be well cooked).

Chicken, turkey.

Bacon, well cooked.

Fish: any well boned fish.

Shellfish: the bellies of steamed clams and of stewed oysters, when fresh.

Egg: 1 egg should be given daily.

Green vegetables:

All cooked vegetables except corn and cucumbers.

Raw vegetables: tomatoes, carrots, cabbage, celery (finely chopped).

Fresh vegetables are to be preferred, when available.

Fruits (all fresh fruits should be thoroughly ripe):

Bananas, cooked or raw.

Oranges and grapefruit, sliced or juice.

Pineapple, juice only.

Apples, pears, peaches, raw or cooked.

Prunes, plums and cherries, stewed.

Raspberries and strawberries, raw or stewed.

Grapes, without seeds.

Figs and dates, mashed.

Butter:

May be served with vegetables or spread thinly on toast or crackers.

Desserts:

Simple desserts may be given such as prune, banana, or apricot whip, brown betty, apple tapioca, bread pudding, rice pudding, custards, junket, and gelatin with fruits incorporated in it.

Milk:

At least a pint a day should be given and preferably more than this. Some of it may be introduced with the cooking.

§ *What foods should be avoided?*

Foods that require an unusual amount of chewing, such as tough meats, corn and pork; most shellfish and any fish that can not be satisfactorily boned; nuts of all kinds; fruits whose ripeness is questionable; heavy, greasy foods; spiced foods; sweets in general; rich cream, and stimulants like tea, coffee and "cola" drinks.

TRAINING TO EAT

§ *How can a child be taught to chew his food?*

Not by giving only liquid food or solid food which has been put through a fine sieve, but by giving hard crackers, zwieback, crisp toast. Some such food should be given as soon as the incisor teeth are well erupted.

§ *At what age may a child be taught to feed himself?*

Most children can be taught to feed themselves by the end of the second year. To feed any child habitually after this time is a great mistake. Training to feed himself should be begun early in the second year.

§ *How should this be done?*

If the baby is given a spoon at mealtime and encouraged to dip it into his food, although much of the food will be spilled, some will reach its goal. If the first few minutes of one meal a day are devoted to letting the baby feed himself his performance will gradually improve. He will doubtless need to be fed the greater part of the meal by the mother or nurse for some time, and should not be allowed to feed himself exclusively until he can do so in the course of a half-hour.

§ *Why is it that so many young children have poor appetites?*

This is a common condition in children who are not taught to feed themselves at the proper time and whose appetite is likely to be disregarded by the mother or nurse, the child being fed food which he does not want but which the mother or nurse feels he should have. In time the child discovers the interest and apprehension that is caused by his refusal of food and may continue in his refusal because he enjoys the attention it brings him.

§ *How can this situation be prevented?*

In the first place, it must be appreciated that infants and young children vary greatly in their food requirements. Many of them do very well on considerably less food than the average. If the child is healthy one may trust his appetite for the quantity of food he should be given. On no account should he be coaxed or forced to take food which he does not want.

In the second place, one should realize that in children as with adults the appetite is not constant from day to day. The attempt to standardize a child's intake too closely is a mistake. If he refuses a little of this or of that food on occasion it may be disregarded. The regular refusal of food is an indication for a general reduction in the diet.

§ *How should the child be managed who refuses to eat at all unless bribed, cajoled, or diverted?*

Devices for diverting a child and feeding him unawares, such as "playing the music box," "feeding the bird," etc., are the surest way to continue the child's poor appetite. In this situation it is necessary for all persons in contact with the child—parents and often grandparents—to understand that such a child is in no danger of starving himself to death. A child, not ill, who is not hungry enough to eat properly prepared food when it is put before him will only be benefited by going without food for a time. Provided water is given, any child of three or older may go for several days without risk of injury.

Such a child should have his food placed before him at mealtime, and his behavior toward it should be completely ignored by all those present. The food should be removed in twenty minutes even if nothing has been taken, and no food, not even milk, offered until the next meal. At the next mealtime the procedure should be repeated. Usually only one or two days of fasting are required to work the change desired. When deprived of the pleasure of adult solicitude and allowed to become genuinely hungry, he capitulates promptly.

GENERAL RULES TO BE OBSERVED IN FEEDING

Bad habits of eating are readily acquired but difficult to break.

Young children should not be allowed to play with their food, nor should the habit be formed of amusing or diverting them while eating, in order to make them take more food.

Children should not be permitted to make an entire meal of one thing, no matter how proper or substantial this may be.

Children who are allowed to have their own way in matters of eating are very likely to be badly trained in other respects; while those who have been properly trained in their eating can usually be easily trained to do anything else that is important.

Learning to eat proper food in a proper way forms, therefore, a large part of a child's early education. If

careful training in these matters is begun at the outset and continued, the results will well repay the time and effort required.

Whether the child feeds himself or is fed by the nurse, the following rules should be observed:

1. Food at regular hours only; nothing between meals.

2. Plenty of time should be taken. On no account should the child bolt his food.

3. Children should not be continually urged to eat if they are disinclined to do so at their regular hours of feeding, or if the appetite is habitually poor, and under no circumstances should a child be forced to eat.

4. Indigestible food should never be given to tempt the appetite when the ordinary simple food is refused; food should not be allowed between meals when it is refused at mealtime.

DIRECTIONS FOR COOKING FOODS FOR INFANTS AND YOUNG CHILDREN

CEREALS

Cereals are most conveniently cooked in a double boiler, in the proportion of 1 cupful to a quart of water. They may also be cooked in milk. They should be thoroughly cooked, usually between two and three

hours and at least twice as long as directed on the package label. Oatmeal, cracked wheat cereals, corn meal, rice, and hominy are all suitable for infants and young children.

Any of the precooked dry cereals may be given if they are suitably moistened with milk and warmed. The cereals especially designed for infants which have been fortified with minerals and vitamins are of particular value as sources of iron.

CEREAL GRUELS

Thin cereal gruels, made from barley, rice, or oat flour are sometimes useful in cases of acute indigestion (see p. 116). One level tablespoonful of the flour is thoroughly blended with a little cold water and added, with stirring, to ten ounces of boiling water containing a pinch of salt. This is cooked for twenty minutes in a double boiler and then strained. Enough water should then be added to bring the whole up to sixteen ounces.

DRIED BREAD (MELBA TOAST)

Either stale or fresh bread (that from whole wheat preferred) may be used; it is cut in thin slices and placed on top of the stove or in the oven with the door open, and quickly dried until it is crisp, but not browned. It is in many respects preferable to crackers for little children.

EGGS

As has been mentioned before, when eggs are first given only the yolk should be offered. When it is clear that the child is not egg sensitive, whole egg may be given. The egg may be scrambled, poached, soft boiled, or "coddled."

To prepare a coddled egg, a fresh egg, shell on, is placed in boiling water which is immediately after removed from the fire. The egg then cooks slowly in the water, which gradually cools, for seven or eight minutes, when the white should be about the consistency of jelly.

VEGETABLE WATER

The water from cooking green vegetables or the water which accompanies canned vegetables contains valuable minerals and vitamins and should never be thrown away. Such water is often given to infants of three or four months who are not yet on solid food, in place of the plain boiled water between feedings. There is no objection to this practice, and if for any reason the introduction of solid food is postponed it is highly desirable to give vegetable water in the meantime. It should not be forgotten, however, that infants occasionally exhibit an idiosyncrasy to one or another food, and this may manifest itself when the juice of a vegetable to which the idiosyncrasy exists is given. Different vegetable juices should therefore be intro-

duced one at a time just as is the case with solid foods (see p. 137).

With older infants who are taking solid food, the vegetable water may be made into broths or, if it is small in quantity, poured over the vegetable itself.

GREEN VEGETABLES

These are best cooked by steaming them with a minimum of water in a pressure cooker. The time required varies for different vegetables and is given in the directions with the cooker. Old vegetables require longer cooking than young ones. Only when thoroughly tender should they be given to infants.

If no pressure cooker is available they may be cooked in a double boiler using a minimum of water or in a saucepan, using just enough water to keep the vegetable from burning.

Vegetables may be cooked with appropriate quantities of salt for flavoring, but bicarbonate of soda should not be added. Although this may restore some of the color of the vegetable, it destroys valuable vitamins.

Although fresh vegetables are no doubt preferable when they can be obtained, there is no objection to the use of canned vegetables. Commercial canned vegetables which are cooked in the absence of air are somewhat better sources of vitamins than home-canned vegetables.

The so-called "frosted foods" are suitable for use with infants. They retain the flavor, and perhaps

other valuable properties of the fresh vegetable. They must, however, be cooked promptly after thawing, for they will spoil rapidly.

MEAT AND MEAT PRODUCTS

Beef juice was once widely used for feeding young infants when it was customary to postpone the introduction of solid foods to the latter part of the first year. It is a nourishing food and is, furthermore, valuable as a source of iron. It may be given, even to the youngest infants, but now that solid foods containing iron are regularly given after the fourth month it is very little used. A satisfactory recipe for making beef juice is the following: One pound of finely chopped round steak, six ounces of cold water, a pinch of salt; place in a covered jar and stand on ice or in a cold place, five or six hours or over night. It is well to shake occasionally. This is now strained and all the juice squeezed out by placing the meat in coarse muslin and twisting it very hard. It may be kept in a refrigerator and warmed before use.

MEAT BROTH

One pound of finely chopped lean meat—beef, veal, mutton or chicken—including some of the bone, one pint of cold water, pinch of salt. Cook for three hours over a slow fire down to half a pint, adding water if necessary; strain through muslin, and when cold carefully remove the fat, adding more salt if

required. It may be fed warm, or cold in the form of a jelly.

A very nutritious and delicious broth is made by thickening this with cornstarch or arrowroot, cooking for ten minutes, and then adding three ounces of milk, or one ounce of thin cream, to a half pint of broth.

SCRAPED BEEF OR MEAT PULP

A piece of rare round or sirloin steak, the outer part having been cut-away, is scraped or shredded with a knife; from one-half to one tablespoonful may be given, well salted, to an infant who can do some chewing. Ground meat is less laborious to prepare and, as a rule, quite as satisfactory. Finely chopped meat should be given to infants with their first molar teeth erupted.

MASHED LIVER

A thin slice of calf's liver is cooked in a double boiler without water for 15 minutes and then rubbed through a sieve.

A pressure cooker in which meats can be steamed is useful in preparing them for young children.

FRUIT PULP

In preparing fruits for young infants, they should be stewed until very soft with little or no sugar added. The skin and seeds are then removed by strain-

ing. Prunes, apples, apricots, and peaches may be treated in this way.

MILK PRODUCTS

Junket. One pint of fresh cow's milk, warmed to blood heat; pinch of salt; one-half tablespoonful of granulated sugar; add two teaspoonfuls of Fairchild's essence of pepsin, or liquid rennet, or one half of a junket tablet dissolved in water; stir for a moment, and then allow it to stand at the temperature of the room for twenty minutes, or until firmly coagulated; place in the ice-box until thoroughly cold. For older children this may be seasoned with grated nutmeg.

Curd. The dry curd, after all the whey has been drained off or removed by squeezing, with the addition of a little salt, is palatable and often useful in feeding young children convalescent from digestive disturbances. A round tablespoonful may be given several times a day either plain or spread on thin toast. It should not be used for this condition unless freshly made. No sugar should be added before coagulation.

Part 5

FEEBLE AND
PREMATURE INFANTS

FEEBLE AND PREMATURE INFANTS

¶ *What is the best place in which to care for a premature infant?*

A hospital for infants is by far the best place. It is a very difficult problem to raise these delicate infants, even with constant medical attendance and nurses who are experienced in caring for them. When no such facilities are available and the infant must be cared for at home, the directions given below should be followed closely.

¶ *What are the three great difficulties in raising a premature infant?*

The first, to maintain the body heat; the second, to nourish the child; and the third, to prevent infection.

¶ *How may the body heat be maintained?*

These feeble infants often can not produce enough heat to maintain their body temperature, and artifi-

NOTE.—The directions given in this section apply to all children under 5 pounds in weight and less than 19 inches in length. Such small children even though born at full term are unusually feeble and require the same care as premature infants.

cial heat must therefore be constantly supplied. Immediately after birth the baby should be wrapped in a warm blanket and placed in a heated crib. It is of the greatest importance to prevent chilling.

§ *How may the crib be heated?*

The crib or a small clothes basket is padded on all sides to prevent drafts. The heat may be furnished by surrounding the baby with hot water bags or bottles. An electric pad is useful for this purpose.

§ *What precautions must be observed in heating the crib?*

Great care must be taken to avoid overheating the child. These infants are just as susceptible to overheating as they are to chilling; moreover, they are easily burned. The baby should be separated from the heating bag or pad by several layers of blankets, and a thermometer placed in the bedding near the child should register between 80° and 85° F. The temperature of the nursery should be maintained at about 80° F.

TEMPERATURE

§ *How often should the infant's temperature be taken?*

For the first few days it should be taken every four hours (see p. 255). Only in this way can one be certain that the proper amount of heat is being supplied. If there is too little heat the baby's temperature may fall to 95° or even lower, while if there is too much

heat it may rise to 105° or more. One should make every effort to keep the temperature between 98° and 100° F. When the temperature has been satisfactorily regulated it need be taken only twice daily, for the less the baby is handled, the better he will do.

CLOTHING

§ *How should a premature infant be clothed?*

The entire body may be wrapped in absorbent cotton or lamb's wool. The extremities, neck, and head, should be covered, leaving only the face exposed. This covering may be renewed every other day. A more permanent garment of quilted gauze and absorbent cotton, made in the shape of a hooded cape, may also be used. The usual diaper may be replaced by a pad of gauze and absorbent cotton.

Care must be taken not to confine the limbs too closely, so that the baby can move his limbs if he will.

BATHING

§ *Should a premature baby be bathed?*

No; instead, olive oil should be gently applied (not rubbed in) to the entire body immediately after birth, and every other day thereafter.

VENTILATION

§ *How may such infants be given fresh air?*

The nursery should be given a thorough airing at least once a day. During this time the infant should

be placed in another room and should only be returned to the nursery when the usual temperature of the room has been restored.

F E E D I N G

¶ *Can mothers of premature infants usually nurse their babies?*

When the baby is born only a few weeks before term, the mother will usually be able to nurse him, but when the baby is born before the eighth month this is seldom possible. Every effort should be made, however, to help the secretion of mother's milk (see p. 57).

¶ *Can feeble and premature infants nurse?*

They are seldom strong enough to take the breast, and some form of artificial feeding must be employed even when breast milk is fed. Infants who are unable to suck may be fed with a medicine dropper. The smallest of them are too feeble even to swallow and must be fed by a catheter, a rubber tube passed down into the infant's stomach. This is connected with a funnel into which the feeding is poured and allowed to run in slowly by gravity.

¶ *What food should such infants be given?*

Breast milk is an excellent food for premature infants and for most of them it is satisfactory when given without any alteration. The quantity of protein in breast milk is, however, small and may be inadequate to provide for the unusual growth re-

quirements of these infants. It is therefore wise to reinforce the breast milk by the addition of curd.*

If the infant is to be artificially fed, this may be done with the standard formula (see p. 90). Better results may, however, be obtained by a special feeding designed for premature infants which, in addition to being reinforced with curd, contains a fat which they can assimilate more readily.†

§ How may these infants be fed?

The quantities of milk formula needed during the first days of life are shown in the following table:

Weight of Child	1st Day	2nd to 3rd Day	4th to 5th Day	6th to 7th Day
<i>pounds</i>	<i>ounces</i>	<i>ounces</i>	<i>ounces</i>	<i>ounces</i>
2	1	2	3	4
4	2	4	6	8
6	3	6	9	12

As a rule it is best to feed the baby every three hours, dividing the daily quantity into eight feedings. If the baby has a tendency to vomit or to turn blue after feedings, it may be preferable to divide the daily food into ten different feedings.‡

* A suitable formula may be prepared by adding one level tablespoonful of powdered curd to 4 ounces of breast milk.

† A suitable feeding for premature infants can be made from the preparation Olac by adding $3\frac{1}{2}$ level tablespoonfuls of the powder to 6 ounces of boiled water. This should be stirred in with a fork or egg-beater as is done with any powdered milk preparation.

‡ A graduated cylinder or a syringe graduated in cubic centimeters (1 cubic centimeter = $\frac{1}{30}$ ounce) is convenient for measuring individual feedings.

After the first week if the baby has begun to gain weight one should be content and make no further increase for a time. If there is no gain in weight the effect of increasing the food should be tried.

After the infant is fed, he should be laid on his side instead of flat on his back. In this position there is less danger of his aspirating small amounts of food that may be regurgitated.

¶ *Is it necessary to give additional water to these infants?*

It is important to do this, particularly during the first week of life in which such small amounts of food are given. An infant weighing two pounds should always receive at least 5 or 6 ounces of fluid a day. If this is not being given as milk the difference should be made up by giving water. Similarly, an infant weighing 4 pounds should receive 10 to 12 ounces of fluid a day.

¶ *What other foods should a premature baby be given?*

These infants are likely to develop rickets very early, and the usual quantities of cod liver oil are not sufficient for their needs. They should therefore be given some concentrate, such as percomorph liver oil or Navitol, which is 100 times as potent as cod liver oil, ten drops three times a day. This should be started no later than the second week of life.

The requirement for orange juice is the same as that of the normal baby.

Since these infants are very prone to develop anemia they should be given some form of iron. Beginning at three months of age, one teaspoonful of beef juice may be given twice a day. In some instances it is advisable to give medicinal iron as well.

PREVENTING INFECTION

§ *Why is it so very important to guard against infections?*

Because these infants have such feeble resistance to disease that even a slight infection, like a common cold, is likely to prove fatal.

§ *What can be done to prevent infections?*

No visitors should be allowed to come near the baby. Preferably only one person, the mother or nurse, should have the care of the child. It is a wise precaution always to wear a gauze mask over the nose and mouth when handling the infant. Above all, no kissing should be permitted.

§ *How long is it necessary to continue the special precautions advised for feeble and premature infants?*

As a rule babies who reach a weight of six pounds can be treated like normal infants.

Part 6

OLDER CHILDREN

OLDER CHILDREN

GROWTH AND NUTRITION

HEIGHT AND WEIGHT

§ *Is it important to watch and record the growth of older children?*

Yes, for nothing else shows so well that a child is making normal progress as his rate of gain in height and weight. In infancy progress is noted by weeks; in later childhood, by months. A regular gain in weight and height in an older child is as much a sign of health as in an infant.

§ *Is there a standard weight for children at the different ages?*

There is not; in both weight and height healthy children of the same age vary a good deal; they are much modified by race and by family inheritance.

§ *Is there a standard weight for children of the same height?*

Yes, approximately; this varies so little in children of different families and different European races that it may be taken as a general guide to the child's

nutrition. The *standard* weight for height is given below. The *normal* includes a wider range.

Age, however, is a factor which can not be ignored. Of two children having the same height but of different ages, the older child should weigh more than the younger one.

HEIGHT	WEIGHT	
	Boys	Girls
42 inches	40.5 lbs.	39.5 lbs.
43 "	42.5 "	41.5 "
44 "	44.5 "	43.5 "
45 "	46.5 "	45.5 "
46 "	48.5 "	48 "
47 "	51 "	50.5 "
48 "	53.5 "	53 "
49 "	56 "	55.5 "
50 "	58.5 "	58 "
51 "	61.5 "	61.5 "
52 "	64.5 "	64.5 "
53 "	67.5 "	67.5 "
54 "	71 "	71 "
55 "	74.5 "	74.5 "
56 "	78 "	78.5 "
57 "	82 "	83 "
58 "	86 "	87.5 "
59 "	90 "	92.5 "
60 "	94 "	99 "
61 "	98 "	105 "
62 "	103 "	111 "
63 "	108 "	115 "
64 "	114 "	119 "
65 "	120 "	123 "
66 "	126 "	126.5 "
67 "	132 "	130 "

* Weights are taken in usual indoor clothes without shoes; boys with coats and sweaters removed; heights are without shoes.

¶ *How wide a variation from the average may be regarded as normal, that is, within the range of health?*

There is no absolute line that can be fixed. It is generally accepted that for practical purposes any child who is 10 per cent or more below, or 20 per cent or more above the average for his height and age is not normal as to his nutrition.

There are also many children who are less than 10 per cent below standard weight for height and age who are not normal and are in need of attention.

The child who is habitually much below the averages noted may be thin because of inheritance, but frequently because he is abnormally active. All such children should have a complete medical examination at least twice a year and be closely watched to see that they keep well. They are very likely to develop nervous symptoms or serious disease.

¶ *Is every child who has a proper weight for his height to be considered normal?*

There are some children who are stunted in growth by causes which also affect their weight. Though they may weigh enough for their height they may be so much below standard in both that they can not be classed as normal.

¶ *Are children who are above standard weight for height to be considered normal?*

If they are very much above standard weight for height (20 per cent or more), they can hardly be

classed as normal. Overweight, though perhaps not so serious as underweight, is still important and should not be ignored.

¶ *What else besides being much below weight for height shows that a child is undernourished?*

The fact that he does not make the normal gain in weight. This is even more important than being at any time below weight for height.

AVERAGE ANNUAL GAIN

Boys			Girls		
Age (years)	Weight (pounds)	Height (inches)	Age (years)	Weight (pounds)	Height (inches)
5 to 6	4	2	5 to 6	4	2
6 to 7	4.5	2	6 to 7	4.5	2
7 to 8	4.5	2	7 to 8	5	2
8 to 9	5	2	8 to 9	5	1.7
9 to 10	6	2	9 to 10	6	2.2
10 to 11	5	1.7	10 to 11	7	2
11 to 12	6.5	1.8	11 to 12	9.5	2.5
12 to 13	8	2	12 to 13	11.5	2
13 to 14	10.5	2.5	13 to 14	10	2
14 to 15	12.5	2.7	14 to 15	6	1.2
15 to 16	12.5	2.7	15 to 16	5	.75
16 to 17	6.5	1.2	16 to 17	2	.50
17 to 18	5	.5	17 to 18	1	.20

MALNUTRITION

§ *Should one be concerned about a child who does not make a regular gain in weight?*

Growing children should be weighed regularly, usually once a month, but the monthly gain is rarely regular throughout the year. Sometimes for two or three months there may be little or no gain in children who are quite well, but this is apt to be followed by a period of very rapid gain. This is often seen in the fall.

A prolonged stationary weight or a steady loss in weight at any time demands attention. The annual rate of gain with healthy children is fairly uniform. The average for both sexes is given on page 176.

§ *What should be done if a child is not gaining as he should?*

He should first be examined by a physician to see whether he is suffering from any disease or defect which retards growth, and then his whole daily routine should be carefully investigated to see what is wrong.

§ *What are the common causes of a child's being continually underweight?*

It may be constitutional, a condition inherited from delicate parents, but more often there are other causes:

1. The food, which is insufficient in amount or improper for a child of his age.
2. Bad food habits—eating too rapidly, not chew-

ing food properly, eating irregularly and between meals.

3. Excessive activity—too much hard play or hard work.

4. Late hours, too little rest and sleep, often resulting in excessive nervousness.

5. Some defect like bad teeth, enlarged tonsils or adenoids.

6. The beginning of some serious disease such as tuberculosis, heart disease, etc.

Any of these causes if discovered must be removed before improvement can be expected.

§ *How are conditions like those mentioned to be prevented from affecting the child's nutrition?*

The important thing is that they should be recognized and corrected as early as possible.

§ *How can one make sure of early recognition?*

Every child should be weighed regularly each month, as the easiest means of detecting early what is wrong; a full medical examination should be made twice a year during the period of active growth.

§ *Where should these observations upon growth be made?*

As they are not likely to be made regularly in the home by the family physician, they should be made a part of the regular work of the school. Reports of the result of the health examination and progress should be sent to the parents with the report of the school

work, and records of the child's weight, height, and health should be kept at the school just as are the records of his progress in his studies.

¶ *What symptoms are commonly seen in children suffering from malnutrition, that is, those who are habitually much below normal weight?*

Most of them are nervous; they tire easily; they sleep poorly; they may be irritable and tears come readily; they are often very active and find it almost impossible to sit still; in school they are inattentive and find concentration on lessons difficult; the appetite is apt to be capricious; they frequently suffer from chronic constipation; often they are pale and anemic.

¶ *Is this condition of malnutrition or undernourishment an important matter?*

It is very important, if boys and girls are to grow up into strong men and women. Those who are responsible for their care during the period of growth should see to it that their nutrition is kept up to the normal standard. Besides, it is very difficult for a child who is habitually undernourished to do his school work well. Again, malnutrition often lays the foundation for some serious disease such as tuberculosis. All children who are much underweight or who do not gain normally should be closely watched.

¶ *How is malnutrition to be prevented or corrected?*

The first essential is to see that the common rules of health are obeyed: proper food in sufficient amount;

sufficient hours of sleep; fresh air and proper exercise. Education in these matters must be given not only to parents but to the children themselves. The health authorities, the school, and the home should all cooperate to this end.

¶ *What sort of routine should be adopted for a child of ten or twelve who is much undernourished?*

The amount of work required in school should be reduced.

The hours of active exercise or play should be shortened.

There should be a rest period in both the forenoon and the afternoon.

A small feeding, usually milk, should be given between the regular meals, just before the two rest periods.

The hours in bed should be lengthened, the bedtime being not later than 7 P.M.

There should be plenty of fresh air not only at night but during the rest periods of the day.

The diet should consist only of the simplest food; no fancy articles; no sweets between meals. It is important that the diet be a balanced one, and in particular that it contain a sufficient quantity of protein food (see p. 185).

The child should be taught to eat slowly and chew his food well. Serving the food in courses, rather than bringing on the whole meal at a time, may be of help here.

The weight should be taken every week.

¶ *Should not a malnourished child be given vitamin supplements?*

The subject of vitamins is discussed elsewhere (see p. 195). It is a safe rule to give them only under the direction of a physician.

OVERWEIGHT

¶ *What are the causes of children being overweight?*

With some it is chiefly a matter of inheritance; with many it is the result of too little active exercise and eating too much, especially of things which are fattening, such as sweets, cereals, potatoes, and breadstuffs, and too little fruit and green vegetables.

¶ *How should an overweight child be managed?*

One should make sure that there is ample opportunity for active play and exercise. In many instances the difficulty arises from the fact that a child is kept too closely confined at home because of fear of what "rough" children in the neighborhood will do to him.

The diet of such children usually requires restriction, but this should be done at the expense of the carbohydrate foods (cereals, white vegetables, sweets, breadstuffs) rather than by cutting off the protein foods (meats, milk and eggs, green vegetables). To reduce the latter may injure a child's health.

¶ *Is it not wise to restrict fats as well?*

This is often done, but it may be a very ineffective procedure. When the fats are largely eliminated from

the diet the stomach empties itself very rapidly after a meal. As a consequence the child becomes very hungry long before the next mealtime and is likely to steal food between meals.

§ *How can one control the appetite of a child whose diet is to be restricted?*

One should allow fats, such as butter, cream, bacon, egg yolk, in moderation. Much can be done to take the edge off a child's appetite by giving "filling" foods which have large bulk and relatively little caloric value. Such foods are the leafy vegetables—lettuce, cabbage, cauliflower, spinach, etc.—and unsweetened fruits.

No extensive restriction of a child's diet should be made except on the advice of a physician.

§ *In what respect is a child harmed by being overweight?*

Obese children often have good dispositions, but they are likely to be slothful; the added effort of moving about interferes with their participation in many normal activities. There is some evidence that they are less resistant to disease. A moderate degree of obesity is, however, not a serious concern. It is common before the age of puberty and often corrects itself at the time the sudden growth spurt associated with puberty takes place.

TRAINING IN HEALTH HABITS

Training in health habits is one of the most important parts of the child's education. This training should be begun early, even in infancy, and kept up faithfully throughout childhood, so that the routine becomes established as a part of the child's daily life; for on it depends in no small degree his comfort, health, growth, and happiness.

¶ *What are the essential health habits in which all children should be trained?*

1. Habits of eating:

Eating a variety of food, not making an entire meal of one or two articles.

Eating food proper for children—not food of their own choosing.

Eating slowly and chewing thoroughly, not bolting food and washing it down with water, and never drinking with the mouth full of food.

Eating at regular hours only.

Drinking water several times a day between meals.

2. Cleanliness:

A full bath at least twice a week, preferably once a day.

Clean hands and face.

Hands always washed before eating and after going to the toilet.

Brushing the teeth, always before going to bed; if possible in the morning also.

3. Regular bowel movements, preferably in the morning after breakfast.
4. A midday rest, to be continued with all children at least to school age.
5. An early bed hour, to secure necessary sleep, *e.g.*, eleven hours for a child of ten years.
6. Plenty of fresh air, the windows always open at night.
7. Out-of-door exercise and play every day.
8. Covering the mouth and nose when coughing or sneezing.

§ *Where should these habits be taught?*

The home is the proper place; if not in the home, they should be taught in all schools, beginning with the primary grades. They can often be taught more successfully in school to groups than to a single child, since the spirit of competition may be roused which gives an added interest.

D I E T

§ *Why should the food of children differ from that of adults?*

Although most adult foods can be eaten by children over three years of age, there are some things best avoided since they are likely to upset the digestion of children. Furthermore, children need food for growth,

and it is important that their diet contain adequate quantities of the food elements which are essential to growth, particularly proteins and certain vitamins.

§ *Which foods are the richest in the elements needed for growth?*

Milk, meat, fish, and eggs are the best. They all contain animal proteins, which are the most valuable foods for growth.

§ *Is it necessary that all these foods be given?*

No. These foods are to a large extent interchangeable. Exceptionally, as when one of these foods is unavailable or when a child has an idiosyncrasy to one or another of these foods, one may omit that food and substitute one of the other sources of animal protein for it. As a rule it is better to use all these foods in order to give variety to the diet.

MILK

§ *Why should milk form a part of the diet of all children?*

There is no other food that supplies so many of the elements needed for growth. Nothing can quite take its place. Even when the price of milk is high it is usually the cheapest of foods if its value to the child is taken into account.

Because of its digestibility it is peculiarly adapted to the diet of the child. There are very few children who can not take and digest milk if it is properly fed.

§ *How much milk should be allowed daily?*

With a diet in other respects sufficient, not less than a pint daily for every growing child; a pint and a half is better, and a quart is not too much, including what the child takes in his other food and on cereals and in other ways than drinking.

§ *What are the essential points in the use of milk?*

It should be clean and as fresh as possible but not too rich. It is a mistake to select for children rich Jersey milk and use it as if it were ordinary milk. This may take away a child's appetite for milk. Nor should a child be allowed to eat a hearty meal of solid food and drink at the same time one or two glasses of milk as if it were water. The disturbance of digestion which follows such a practice is often ascribed to the milk when it is simply the result of too much food. If fresh milk can not be obtained, dried or evaporated milk may be used. There is no objection to evaporated milk other than its taste.

§ *To what extent should cream and butter be used?*

Thick cream and butter should be used in moderation. They are heavy foods which tend to stay in the stomach and if used in excess may impair a child's appetite.

It is better to use thin cream on cereals and fruits and to give no more than one teaspoonful of butter per meal to a small child and twice as much to one of eleven or twelve years.

¶ *Can the butter substitutes which are sold take the place of butter made from cow's milk?*

Butter contains valuable vitamins. Although some of the margarines sold have been reinforced with these vitamins, there are others, including peanut butter, which are not so reinforced and which therefore can not replace butter as a food.

¶ *Should skimmed milk be given to children?*

Skimmed milk and buttermilk are cheap and valuable foods for children. They supply protein which may partially replace meat and eggs in the diet. But since they lack fat they can not take the place of whole milk. If regularly used for children, butter or some other animal fat should be supplied.

¶ *Should cheese be given to children?*

Fresh "cottage" or cream cheese may be given upon dried bread to children of three or four years. Other forms of cheese are somewhat difficult of digestion and should not form a part of the diet of children before they are eight or ten years old.

MEAT AND FISH

¶ *What meats and fish are the best for children?*

Beef, veal, lamb, liver, bacon, sweetbreads, brains, kidneys, chicken, turkey, duck, and such fish as flounder, haddock, bass, shad, trout, chicken cod,

halibut, or swordfish are all excellent foods when well cooked.

¶ *What are the important points to be considered in giving meat to children?*

Tough meats and indigestible portions, such as gristle, are to be avoided with young children who are not likely to chew their food well. Fresh meat is always preferable to dried or salted meat, for the latter is likely to be tough.

A child of four or five should have one good tablespoonful of lean meat a day and one of twelve twice that amount.

EGGS

¶ *To what extent may eggs be used in the diet of children?*

They form a most valuable food. Most children from five to ten years old will take one fresh egg for breakfast and often another for supper for an indefinite period with relish and benefit. There are, however, some few who have a peculiar idiosyncrasy to eggs, and can not take them at all.

GREEN VEGETABLES

¶ *Are green vegetables important in the diet of children?*

They form a very essential part of it. They give volume or bulk to the meal. From the amount of residue they leave in the intestines they are important in overcoming a tendency to constipation. They fur-

nish certain necessary salts and vitamins which the body requires.

¶ *What are the important things to be considered in selecting and preparing green vegetables for children?*

They should be as young and as fresh as possible. This applies especially to beets, lima beans, peas, and carrots. Old vegetables are tough and require much cooking and thorough chewing, otherwise they pass through the body undigested and often do harm. Vegetables should be steamed or boiled in a small amount of water; since much that is valuable dissolves in the water, this should be used in making soups, gravies, etc. Vegetables should be cooked until tender, the time depending upon their age and freshness.

¶ *What green vegetables may be given to children?*

The most important are peas, lima beans, string beans, asparagus, spinach, chard, stewed tomatoes, beet-tops, cooked lettuce, and in summer all kinds of "pot greens," squash, and young beets; in winter, carrots, celery, boiled onions, turnips, boiled or raw cabbage, cauliflower, parsnips, egg plant, oyster plant. Green corn should not be given to young children.

¶ *How much green vegetable should be given daily?*

One should give at least one green vegetable every day and preferably two a day. The quantity will depend upon the amount of other food, and upon the child's appetite. Most children seven or eight will take at

least two good tablespoonfuls of any of the vegetables mentioned at their principal meal. The fact that small particles of green vegetables appear in the stools is not proof that vegetables are disagreeing and that they should be stopped, but only indicates the need for better chewing or finer subdivision of the food.

§ *Are canned vegetables to be recommended for children?*

Most brands of canned vegetables are quite satisfactory; they are to be preferred to stale green vegetables sold in the market.

BROTHS AND SOUPS

§ *What broths and soups are to be recommended?*

Broths are valuable in that they contain minerals and certain vitamins which are removed from the meats and vegetables in the process of cooking. Of the meat broths, beef, mutton, or chicken may be given. Those thickened with rice, barley, or cornstarch form a useful variety, especially with the addition of milk. Vegetable purées of peas, beans, lentils, spinach, potato, celery, tomatoes, or asparagus may also be given to children.

FRUITS

§ *Are fruits an essential or important part of the diet?*

A well-balanced diet should include some fruit. Fruits are valuable for the effect they have upon the bowels.

Fresh fruits, particularly the citrus fruits, are important for their vitamin content. Fruits should be selected with care and given with discretion, especially in cities. In the country, where fruit is absolutely fresh, a somewhat greater latitude may be allowed than is given below.

¶ *What fruits may safely be given to children up to five years old?*

As a general rule, only cooked fruits and the juices of fresh fruits. Ripe bananas, however, are easily digested and may be given to infants of six months when thoroughly mashed.

¶ *What fruit juices may be used?*

That from sweet oranges is the best, but the fresh juice of grapefruit, pineapple, peaches, strawberries, and raspberries may also be used.

CARBOHYDRATE FOODS

¶ *What are the carbohydrate or starchy foods and what is their value?*

Cereals, breadstuffs, and white vegetables such as potato, rice, hominy, spaghetti, etc., are composed largely of starch. In the digestive tract they are broken down to form sugar, which is the chief source of the energy or work of the body. Sugar which is eaten as such is also used in the same way. It is also classed as a carbohydrate food.

§ *How much carbohydrate food should be taken daily?*

Exact amounts can not be stated, but in average well-balanced diets between one-third and one-half of the total food intake consists of carbohydrate foods.

§ *What are the important points to be considered in giving carbohydrate foods?*

Although carbohydrate foods are very useful it is important to see that children do not form the habit of eating them to the exclusion of the foods that are more important for growth. In feeding cereal products one should give preference to the "whole grain" breadstuffs and cereals, for these contain valuable vitamins. The "enriched" bread now widely advertised is not as valuable as that made from whole wheat.

§ *What are the effects of a diet composed largely of carbohydrates?*

Children who are fed too large a proportion of carbohydrate in their diet may gain weight normally but they are likely to get fat and flabby. There is some evidence that they are less resistant to infections and that they are more susceptible to dental decay. Such diets are also likely to be deficient in the B vitamins (see p. 196).

§ *How can the habit of taking an excess of carbohydrate food be avoided?*

(1) By giving hungry children additional milk, eggs, meat, and green vegetables rather than second helpings of cereal foods and sweets; (2) by limiting the quantity of sweets and never giving desserts and other sweet food if the more substantial portion of a meal has been refused. The greater part of the carbohydrate given should be in the form of starchy food rather than as sugar. A child who is allowed liberal amounts of sugar is likely to develop a "sweet tooth" and soon begins to lose his appetite for foods that are not sweet.

FOODS TO BE AVOIDED

§ *What foods should be avoided in the diet of young children?*

In general one should avoid: (1) certain foods that may cause mechanical injury; (2) foods that require more chewing than a child is likely to give them and are hence poorly digested; (3) highly seasoned, spiced foods and sweet foods, which are likely to take away the appetite for the more important staple foods that are needed for growth; (4) stimulants.

Fish that can not readily be deboned should never be offered to young children. Particles of nuts are not infrequently aspirated by children and are therefore best avoided under seven or eight years of age.

Among the foods that are not likely to be properly chewed may be mentioned tough meats, particularly

dried meats and pork products, bologna and spiced meats, corn, raw cucumbers, radishes, cocoanut, pineapple, and most dried fruits.

As a rule, pickles, green cheeses, and highly seasoned foods should not be given to children. Desserts should be simple; such articles as plum pudding, fruit cake, and rich cakes and pastries in general are best avoided entirely. Such sweets as cookies, cakes, candy, waffles or pancakes with syrup, ice-cream, and soft drinks should be limited in quantity.

Alcoholic beverages are not likely to be offered to children, and children seldom have any interest in coffee or tea except for the sweetening they contain. The most common stimulants they are likely to take at the present time are the "cola" drinks, many of which contain appreciable quantities of caffeine. The liberal indulgence in such beverages is not infrequently a cause of nervousness and poor sleep.

§ *Does "a little" of a forbidden food do any harm to small children?*

Yes, in that it develops a taste for such food and not infrequently the little soon becomes a great deal. This is particularly likely to happen in the case of sweets.

§ *Does not the child's instinctive craving for sweets indicate his need of them?*

That a child likes or craves sweets is the usual excuse of an indulgent parent. Every child likes his

own way, but that is no reason why he should not be trained to obedience and self-control; a child's fondness for sweets can hardly be considered a normal instinct. The objections to the excessive use of sweets and other carbohydrate food have already been pointed out. The appetite for the plainer essential foods is likely to fall off.

The best rule is to limit sweets to a few simple desserts and to forbid them entirely between meals.

VITAMINS.

§ *What are vitamins?*

They are certain constituents of food which must be present in minute amounts if health is to be maintained. They enable the body to utilize foods and to perform various other functions. A considerable number of these vitamins have been discovered by studies on animals, but only seven of them are known to be of importance to man: vitamin A; three members of the "vitamin B complex"—thiamin, riboflavin, and nicotinic acid; also vitamin C, vitamin D, and vitamin K.

§ *What symptoms are seen in vitamin A deficiency?*

Lack of this vitamin causes night blindness and later a condition known as xerophthalmia in which the eyes lose their luster and the cornea may ulcerate. There may be infection of the eyes, the respiratory tract, and other mucous membranes.

¶ *Under what circumstances may vitamin A deficiency occur?*

Vitamin A is found in most animal fats; it is abundant in milk and especially so in cod liver oil and certain other fish oils; it is also present in green vegetables. If the diet contains whole milk, butter, or reasonable amounts of green vegetables a deficiency of vitamin A is not to be feared. Vitamin A deficiency is rare in most parts of the United States. In families of the better class it is likely to be encountered only when the foods mentioned have been restricted—either because of some digestive disturbance or because of some food idiosyncrasy which the child is believed to have.

¶ *Is there any advantage in supplementing a normal diet with vitamin A?*

There is no evidence that this is necessary or beneficial. Because of the fact that infections of the eyes, the respiratory tract, and other mucous membranes may result from vitamin A deficiency, this vitamin has been widely exploited to the public as the “anti-infective vitamin” and has been included in cough drops and other proprietary medicines. There is no evidence that colds, coughs, and other common infections are prevented or benefited in any way by taking vitamin A supplements.

¶ *What symptoms are seen in deficiencies of the vitamin B complex?*

A deficiency of thiamin (vitamin B₁) in the early stages causes vague symptoms only, such as irritability and

loss of appetite; when the condition is more advanced the disease picture known as *beriberi* develops which affects the heart and the nerves causing pain, weakness, and even paralysis of the limbs.

A deficiency of riboflavin (vitamin B₂ formerly called vitamin G) may cause soreness of the tongue and lips, greasy lesions of the skin about the nose and eyes, and sometimes sore eyes.

A deficiency of nicotinic acid (niacin) may lead to pellagra, a disease characterized by a sore mouth and tongue, diarrhea, brown scaly lesions of the skin in parts exposed to the sun, and, at times, it may cause mental changes.

¶ *Under what circumstances are these deficiencies of the vitamin B complex likely to develop?*

The members of the vitamin B complex are usually found together in natural foods, and it is not uncommon to have multiple deficiencies of the B group when the foods containing these factors are taken in inadequate amounts. These vitamins are present in most meats and green vegetables; they are especially abundant in liver, in brewer's yeast, and in the germ of cereals; eggs and milk also contain considerable amounts, particularly of riboflavin. Any one who eats a balanced diet, including reasonable amounts of animal foods—milk, meats, eggs, and green vegetables—is in no danger of developing any of these vitamin B deficiencies. They are likely to develop only when sugar and refined cereal foods constitute the greater part of the diet. Such a high carbohydrate diet not

only fails to supply these needed factors but is further harmful in that it increases the requirement for them, since one of the chief functions of the B vitamins is in the utilization of carbohydrate food. A "vicious circle" is thereby established: as more carbohydrate is fed, more of the B vitamins are needed and less are supplied.

Deficiencies of the vitamin B complex are common in conditions of extreme poverty, particularly in the South. In families of the better class they are rare and are, as a rule, encountered only in cases of prolonged indigestion, or when the diet has been unduly restricted because of some dietary fad, digestive disturbance, or food idiosyncrasy.

§ *Is it not desirable to supplement normal diets with thiamin or with vitamin B complex?*

These factors have been greatly exploited during recent years by public advertising of foods which have been fortified with them. Thiamin (vitamin B₁) has been characterized as the "appetite vitamin" and recommended for children with poor appetites; it has also been portrayed as the "energy vitamin" and recommended for fatigue. Although lack of appetite may occur in states of thiamin deficiency, it should be appreciated that the lack of appetite seen in so many American children is not due to lack of thiamin but is due to faulty training (see p. 151). The administration of thiamin fails to benefit this condition, nor will it remove the evidences of fatigue which, too, are almost invariably due to other causes.

¶ *Is there any harm in giving foods that have been reinforced with B vitamins?*

Foods which have been reinforced with vitamin B complex as a whole are not harmful, and there is no evidence that the ingestion of B complex in the form of wheat germ or brewer's yeast produces any undesirable effects. The administration of an excess of a single member of the B complex without the others may, however, produce difficulty. Vitamin preparations should not be taken except under the direction of a physician.

¶ *What symptoms are seen in vitamin C deficiency?*

If vitamin C (ascorbic acid) is deficient in the diet scurvy develops after a time. This condition is discussed elsewhere (see p. 282).

¶ *Under what circumstances is vitamin C deficiency likely to develop?*

Vitamin C is found most abundantly in the juices of the citrus fruits, especially oranges and lemons, and also in tomatoes and fresh green vegetables and in potatoes. Though it exists in milk it is destroyed in the process of sterilization.*

Nearly all cases of scurvy are seen in infants in whom the administration of orange juice is neglected

* Commercial canned vegetables which are heated in the absence of air retain this vitamin, but in home canned products which are heated in air it is largely destroyed. Canned milk also contains very little.

or withheld because it is thought to disagree, no substitute being given. Older children on a mixed diet rarely develop scurvy except in conditions of famine. It is, nevertheless, an excellent idea to continue the administration of orange juice and other fresh fruit juices throughout childhood.

§ *What symptoms are seen in vitamin D deficiency?*

A lack of vitamin D causes rickets to develop (see p. 284). Vitamin D is also concerned in the development of healthy teeth.

§ *Under what circumstances is vitamin D deficiency likely to develop?*

Small amounts of vitamin D are present in ordinary milk, in certain animal fats and in liver. The vitamin is also present in egg yolk, particularly during the summer months. It is most abundant in cod liver oil and certain other fish oils. Certain varieties of milk and some other foods have been reinforced with vitamin D. When the body is adequately exposed to direct sunshine, vitamin D is manufactured in the skin and need not be supplied in the diet.

Rickets is seen particularly in infants, whose requirements of vitamin D are greater than those of older children and who are likely to receive less in the diet; they are also less likely to be exposed to direct sunlight. The methods for the control of rickets in infants are discussed elsewhere (see p. 285). The requirements of older children for vitamin D are not known with accuracy at the present time. It appears

probable that children on a well-balanced diet containing ordinary milk and eggs obtain sufficient vitamin D for the development of their bones and teeth even in wintertime. However, there may be some who do not, and for this reason many physicians advise giving some cod liver oil or other form of vitamin D during the winter months throughout childhood.

¶ *What is vitamin K, and under what conditions may a deficiency of this factor develop?*

Vitamin K is a factor which is needed for the coagulation of the blood. It is present in certain green vegetables and can be manufactured to some extent by the intestinal bacteria. Certain forms of hemorrhagic disease are produced when it is deficient, notably hemorrhagic disease of the newborn. The administration of vitamin K will control these conditions, and the administration of vitamin K to the mother, just before the birth of the child, will do much to prevent hemorrhagic disease of the newborn.

¶ *Does vitamin K need to be considered in planning diets for infants and children?*

No. This is a factor that can well be ignored. Except for the first days of life, and in certain rare disease conditions, a deficit of vitamin K is not encountered.

¶ *What is a sane point of view to adopt in regard to vitamins?*

Supplements of vitamins C and D should always be given to infants. With older children a safe rule to

follow is to feed a child a well-balanced diet and to administer vitamins only under the direction of a physician.

COMBINATIONS FOR THE DIFFERENT MEALS

§ *What should guide one in combining articles of food for the different meals?*

The diet must provide the food elements needed for growth and the necessary vitamins, and on this account should contain liberal amounts of animal protein foods (milk, meat, eggs), fruits, and green vegetables. Variety is also needed in order to make meals appetizing. The meals should be varied from day to day. It is also desirable that the different foodstuffs—proteins, carbohydrates and fats—be represented in each meal in order to obtain the best utilization of each.* A child should not be permitted to make a meal of a single food, no matter how excellent a food that may be.

§ *What would be a proper diet for a child of eight or nine years?*

Breakfast:

Fresh fruit; cereal; milk; bread and butter; egg and bacon.

* A food theory advocated a few years ago that only one type of foodstuff should be given at a meal (Hay diet) has been found to be quite fallacious. Protein foods, in particular, are not used to the best advantage unless some carbohydrate is given at the same meal.

Dinner:

Meat, chicken, or fish; potato; one or two green vegetables; stewed fruit; bread and butter; glass of milk.

Supper:

Cereal or milk toast; thick vegetable soup or an egg and a vegetable; plain pudding or custard; glass of milk; bread and butter.

¶ *Is there any objection to a child's having his hearty meal with meat and vegetables in the evening?*

There is no objection to this, and in the case of school children who must carry a light lunch to school with them this plan should be followed.

SCHOOL LUNCHESES

¶ *What sort of lunch should a school child have?*

It should be a generous one and made up of substantial food, not sweets chiefly. If possible, and it nearly always is possible, something hot should be provided at the school: a cup of soup or hot chocolate. Or the child should carry a thermos bottle of milk and a basket lunch of sandwiches, plain cake or cookies, and fresh ripe or dried fruit. Sandwiches should be made of stale wheat or corn bread and butter, with fillings of chopped meat, vegetables, egg, cottage cheese, peanut butter, chopped dried fruit, or occasionally jelly.

FOOD BETWEEN MEALS

¶ *Should school children be given food between meals?*

Children who come home for lunch and are given their hearty meal in the middle of the day will rarely need additional food between meals, but in the case of a child who takes a light lunch to school with him some additional food is necessary. Either a midmorning lunch of milk or chocolate and crackers with butter may be given, or the child may be given similar refreshment when he comes home from school in the middle of the afternoon. The eating of candy and other sweets between meals should be discouraged.

TRAINING TO EAT

¶ *How can a child be taught to eat more slowly?*

It is often best to have the food for a single meal served in courses, only one article at a time, and allow an interval between them. He should not be permitted to drink while eating, milk or water being given only at the beginning or the end of the meal. There is sometimes an advantage in having the child take his food with a very small fork or spoon, e.g., a small coffee spoon for cereals, vegetables, or puddings.

¶ *How can a child be taught to eat food which he needs but does not want?*

This may relate to the amount of food or to the kind of food offered. The problem is essentially the same

as in the younger age group (see p. 151), and it is handled in the same way. It must be appreciated that a child's appetite will vary from day to day, and too rigid insistence that a particular quantity of food be taken each day should be avoided. Scolding and nagging do no good and only make matters worse. Forcing or bribing should never be permitted. Improvement can usually be brought about in some of the following ways:

1. By the child's eating with other persons, especially with other children who take the same diet, rather than taking his meals alone.

2. By training him from infancy to eat what is prepared for him, not allowing him to select his own diet.

3. By giving plain simple food only, no highly seasoned dishes.

4. By giving no food except at the regular hours of meals.

5. By giving first at any meal the particular article which we most desire him to take—his vegetable, meat, milk, cereal or whatever the thing may be—the rest of his food for the meal not being served until the first thing has been eaten.

6. By starving him, if necessary, until he is hungry enough to take the particular food offered. No harm will be done by a fast of two or three days provided water is freely given.

A child's refusal of a particular food is often erroneously attributed to the fact that he is allergic

to it and instinctively refuses something that will make him ill. It is true that certain children have food idiosyncrasies and may break out with a rash or develop a digestive disturbance if a particular food is given. In such instances the offending food is usually eaten with relish; it is conscious experience rather than instinct which teaches a child to avoid such food. Even the fact that vomiting follows the administration of a particular food does not indicate that the food itself disagrees with the child. The vomiting may be *neurotic* in origin: it may be a reaction of protest against undesired food which was forced, or it may serve the purposes of the child in some other way (see section on Behavior Problems).

§ *Are not decayed teeth often responsible for a poor appetite?*

This is not infrequently the case. It is a wise precaution to examine the mouth and particularly the teeth of any child who is eating poorly, to make sure that no local cause is responsible.

INDIGESTION IN OLDER CHILDREN

§ *What are the different ways in which indigestion shows itself in children?*

First, in acute disturbances which usually last for a few days only; and, second, in chronic disturbances which may continue for weeks or months and are sometimes punctuated by acute flare-ups.

¶ *Which of the two forms of indigestion is more likely to impair the health of the child seriously?*

Chronic indigestion; for since the cause is not recognized it often goes on for months and even years unchecked.

¶ *What are the symptoms of acute indigestion?*

These are familiar and easily recognized. They are vomiting, pain, undigested movements from the bowels, often fever and considerable prostration.

Such attacks are usually traceable to their proper cause, the removal of which is followed by prompt recovery.

¶ *What are the common causes of acute indigestion?*

This is frequently due to overeating, to indulgence in some special article of improper food, or to eating heartily when overtired. Acute indigestion often marks the beginning of some acute general illness. When repeated attacks of acute indigestion occur without apparent cause the difficulty may be due to a latent focus of infection. A thorough medical examination is indicated.

¶ *How should acute indigestion be managed?*

One should bear in mind that for the time being the digestive organs have stopped work altogether. All food should therefore be stopped for from twelve to thirty-six hours, according to the severity of the attack, only water of a dilute sugar solution (one tea-

spoonful to the cup) being given; if the symptoms persist, and especially if the cause of the attack is not clear, a physician should be summoned.

§ *At the end of this time is it safe to begin with the former diet?*

No, for such a procedure is almost certain to cause another attack of indigestion. At first only broth, thin gruel, toast, or diluted milk should be given. The diet may be slowly but gradually increased as the child's appetite and digestion improve, but in most cases a week or ten days should elapse before the full diet is resumed.

§ *What are the symptoms of chronic indigestion?*

These, although familiar, are not so easily distinguished and are very often attributed to the wrong cause. There are usually general symptoms such as indisposition, disturbed sleep, grinding of the teeth, fretfulness, languor, loss of weight, and anemia. There are in addition local symptoms: flatulence, abdominal pain, abdominal distention, constipation, or looseness of the bowels with mucus in the stools, foul breath, coated tongue, loss of appetite, or an abnormal, capricious appetite. Many of these symptoms are often wrongly ascribed to intestinal worms.

§ *What are the common causes of chronic indigestion?*

In some cases this condition results from the prolonged use of indigestible foods. The fundamental difficulty is generally an unsuspected focus of infec-

tion which is interfering with the digestive functions. Because of the digestive disturbance, and often because of the child's capricious appetite, the diet is often unwisely restricted, with the result that vitamin deficiencies, particularly those of the B group, may develop.

¶ *How should chronic indigestion be managed?*

This may be a very difficult matter. A thorough medical examination is indicated to see if any latent infection or other disease can be discovered that may be causing the digestive difficulty. Not infrequently infection is discovered—in the tonsils, mastoid, sinuses, the urinary tract, or elsewhere—which can be cleared up and the digestion greatly benefited; or some other form of underlying disease may be discovered. In other cases the search may be unsuccessful. In all these cases the child's diet must be regulated with the greatest care, only the most digestible foods being given, and care being taken to see that the essential food requirements are met. This may require the administration of iron or of vitamin supplements on the part of the physician.

¶ *Is chronic indigestion curable?*

In the vast majority of cases it is so, but this can often be accomplished only by the most careful supervision and feeding. One of the greatest difficulties is that parents and nurses are unwilling to follow a restricted simple diet long enough. It may require several years

of careful feeding before the digestive tract recovers its capacity.

§ *What can be done to prevent digestive disturbances in children?*

One can avoid the foods that are not likely to be well digested by most children (see p. 193). It is not possible to protect a child against many diseases which may affect his digestive tract, but by giving him a simple, well-balanced diet he can be maintained in the best possible condition to resist such diseases as are not preventable. By periodic health examinations chronic disease may be discovered at an early stage and the appropriate treatment applied before the digestion and nutrition have been seriously affected.

THE TEETH

§ *Why is the care of the teeth so important in childhood?*

Good teeth are essential to good looks. Bad teeth are a menace to the general health, and no amount of dentistry in later life can make up for the effects of early neglect. If the habit of properly caring for the teeth is formed in childhood it is likely to continue through life.

§ *What are the important causes of decayed teeth?*

The immediate cause is usually that the teeth have not been kept clean. There is, however, no doubt that excessive indulgence in sweets also increases dental

decay, especially when cleanliness has been neglected as well.

The underlying difficulty which is responsible for most dental decay is a diet which is defective in minerals and vitamins at the time the teeth are being formed, which is long before they erupt. When the diet is adequate at the time the teeth are developing, the teeth are formed with a thick coating of enamel which is a great protection against decay.

The development of healthy "milk teeth" depends largely upon the diet which was given the mother during pregnancy, and the development of sound permanent teeth is greatly influenced by the diet in infancy and early childhood.

¶ *What factors in the diet are particularly important for the formation of sound teeth?*

The minerals calcium and phosphorus, which are present in milk, must be adequately supplied, and it is for this reason that milk should form an important part of the diet in pregnancy and in early life. Vitamins A, C, and D also play an important part, and this is one of the reasons why infants and young children should be given orange juice and cod liver oil or appropriate substitutes (see pp. 284-5).

¶ *Does the first set of teeth require dental care?*

If they are neglected, the second or permanent set is likely to be seriously injured. Infected gums, due to neglect of the first teeth, form a poor soil in which to grow sound second teeth. Teeth with small

cavities should be filled; those with large cavities should be extracted.

§ *What harm do decayed teeth do?*

They interfere with proper chewing of the food, which makes digestion more difficult; absorption of poison from such teeth often causes vague pains in the muscles; it may lead to serious disease of the glands, the joints or the heart; besides, decayed teeth cause bad breath, take away a child's appetite, spoil a child's looks, and lead later to toothache and much discomfort. Every child should therefore have his own toothbrush and be taught to brush his teeth regularly, at least once a day, with tooth-powder or paste.

FATIGUE

§ *How does fatigue manifest itself in children?*

The signs of fatigue from physical exertion are familiar enough, but mental or nervous fatigue may be difficult to recognize. Children who do not obtain enough rest and sleep are likely to become cross and irritable; their disposition often changes entirely, and they may develop tics (habit spasms) of various kinds, most commonly a blinking tic. There may be loss of weight and circles under the eyes.

This situation is seen particularly in city children whose out-of-school hours are crowded with outside activities such as music lessons, dancing lessons, and various social activities so that they have no leisure period during the day and often insufficient sleep at

night. Such children are often regarded as naturally "nervous children," when the real difficulty is not with the child but with the management.

§ *How should this situation be managed?*

Such children should be examined by a physician to make sure that the symptoms are not due to some constitutional disease which has not been recognized. If no such condition is discovered, the child's daily routine must be reorganized. His extracurricular and often his school activities should be reduced, his hours of sleep increased, and a rest period of at least an hour given in the middle of the day. It is a mistake to plan some activity for every hour of a child's day. He should be allowed some time alone in which he is removed from stimulation and left to entertain himself.

POSTURE

§ *Why is it that growing children so often develop a slouchy posture?*

The common type of poor posture—round shoulders and a protruding abdomen—may be due to fatigue, to poor muscular development, or to habit.

§ *What can be done to correct this?*

Relatively little can be accomplished by precept, although rewards may be of some help. If fatigue is at the root of the matter efforts should be made to correct this. If the difficulty is a lack of muscular development this can be overcome by athletic activities and

by suitable exercises. A useful exercise for developing the shoulder and back muscles consists in standing erect and raising the arms over the head without bending the elbows until the palms are approximated; the arms are then brought down, with the elbows still extended and the palms are touched behind the back; this is repeated. The best exercise for the abdominal muscles is to lie flat on the back and raise the body to the sitting posture. If such exercises are carried out for fifteen or twenty minutes a day, improvement can be expected. They are not likely to be carried out faithfully unless done with parents or in a posture class with other children.

There are of course many other types of postural deformity which are caused by disease of the bones, joints, or muscles and which require orthopedic help for their correction.

Part 7

BEHAVIOR PROBLEMS

BEHAVIOR PROBLEMS

It is not possible in a limited space to discuss adequately the problems of child management and child behavior, which are almost as numerous as children themselves.* The principles of child training are, however, few and can be simply stated, although the practice may be difficult and the degree of success will depend much upon the talents of individual parents.

CAUSES OF BEHAVIOR DIFFICULTIES

¶ *What are the causes of behavior difficulties in children?*

The precipitating factors are many and varied, but the fundamental cause is that some primary emotional need of the child is not being met.

* For more extensive discussions the reader is referred to the following works:

Aldrich, C. A. and Aldrich, M. M., *Babies Are Human Beings* (New York, The Macmillan Company, 1940).

Thom, D. A., *Everyday Problems of the Everyday Child* (New York, D. Appleton-Century Company, 1934).

Meyers, G. C., *The Modern Parent* (New York, Garden City Publishing Company, 1930).

Cameron, H. C., *The Nervous Child* (New York, Oxford University Press, 1929).

§ *What are the fundamental emotional needs of a child?*

1. A need for affection and, what comes to much the same thing, a need for approval, regardless of achievement.
2. A need for stability and security in his world.
3. A need for self-expression.

These things are just as essential for mental health as the requirements of protein, fat, and carbohydrate are for physical health.

§ *Are the requirements of children alike in these respects?*

No. Some need more affection than others, and some are more adaptable to changes in their environment. The need for self-expression is also much more pronounced in certain children who have considerable initiative and originality. Some children are naturally more stable than others who are likely to be characterized as "nervous children" or "problem children."

§ *Are these emotional needs of a child constantly present?*

They are greatly influenced by the episodes of daily life. The need for self-expression is particularly well-developed at certain age periods. At the age of two or two and a half years most children discover that they have wills of their own and are apt to show resistance to parental authority; this period has been termed the "age of resistance." Again, with adolescence, the

realization that a child is the physical equal of a parent and can engage in many adult occupations often brings on a desire for greater independence than is offered.

§ *How can one tell that these needs are being met?*

By the fact that a child is contented and happy most of the time.

§ *Can one tell from the nature of a behavior problem which fundamental need of a child is not being met?*

One can not. If any of a child's fundamental emotional needs are inadequately met he becomes emotionally upset, a condition which may manifest itself in a variety of ways in different children. One child may become morose and sullen, another may become fidgety and "nervous," may develop a blinking tic or seek solace in masturbation, while still others will react with emotional outbursts, with aggressive anti-social behavior of various kinds, or with neurotic symptoms. The type of reaction depends in part on the personality of the child and in part upon the behavior patterns which he has an opportunity to observe.

§ *How can behavior problems be prevented?*

One can hardly expect to avoid these difficulties altogether, for a child who never presents any problems to his parents is not a normal child. Many difficulties can, however, be avoided if sound principles of child training are followed from the start.

PRINCIPLES OF CHILD TRAINING

¶ *What are sound principles of child training?*

The principles employed by animal trainers are also the best for children:

1. To teach only one thing at a time.
2. To employ rewards for achievement, rather than punishments for non-achievement. To employ praise for accomplishment, rather than expressions of disapproval for failure.
3. To make sure that the immediate goal set is one that is attainable within a relatively short time. In other words to proceed by very small steps, rewards and encouragement being offered all along the line.

¶ *What happens when too many demands are made of a child at the same time?*

The child who is continually reminded of his table manners, his posture, about combing his hair, washing his hands, cleaning his teeth, keeping his room orderly, or refraining from this or that annoying habit, soon becomes discouraged with his lack of success; he then has no interest in any of these objectives and can be made to conform only by force and grudgingly. On the other hand, if one of these issues is selected and made the object of a suitable reward, the rest for the time being ignored, the attainable goal will usually bring out his best effort. Once this goal has been attained and become a matter of habit one can go on to the next issue.

The same difficulty is met with when a single goal selected is too remote; the child becomes discouraged at the prospect of ever achieving it and ceases to try. With a child who wets his bed every night one should not offer a reward for the complete cure of the habit, but should begin by offering a reward for one dry night and, when this is attained, for two or three successive dry nights, then a dry week, etc.

¶ *Is it not unmoral to reward children for doing what they ought to do or learn to do in any case?*

Not if one is consistent about it. In later life the incentive to one or another type of discipline is some prospective reward, and it is not unmoral to bring up a child under conditions that simulate real life. It is not necessary that the reward be a tangible one, and it is often inappropriate that it should be so. The reward may be some privilege, and in many instances the praise or approval of a parent who has established a close relationship to a child will furnish all the reward which is needed.

¶ *Are not punishments necessary?*

Punishments are emergency measures and are sometimes necessary. They should be meted out only for definitely antisocial conduct, and even so they are often abused. The parent who can discover the underlying cause of the antisocial conduct will often be able to correct it without difficulty and to avoid much punishment.

§ *How should punishments be given?*

This will depend upon the age of the child and the nature of the offense. In order to be effective, punishments must be consistent. Overseverity is to be avoided, for it tends to create resentment. Punishments should be carried out with as little publicity as possible in the family circle, avoiding humiliation of the culprit. It may be wise to discuss the whole matter with the child later when he is in a reasonable mood.

§ *Is corporal punishment ever permissible?*

There are some who hold that it should never be used, and there is no doubt that it is frequently abused. Such punishments as temporary banishment or withdrawal of some privilege may be quite as effectual. On the other hand, there are certain children who in their antisocial moments work themselves up to an emotional pitch that neither reasoning nor isolation can dispel. In such instances a good old-fashioned spanking may result in tears which are followed by a complete and sudden discharge of the pent-up emotion, leaving the child docile, coöperative and affectionate. Under these circumstances the obvious relief to the child himself is a sufficient justification for the procedure. With other children of a more stoical make-up whose antisocial episodes are apt to be calculated rather than brought on by emotional stress, spankings are usually ineffectual measures and cause only resentment.

The question of administering corporal punishments must be judged by its results. A minimum of physical force should be employed. In a young child of three or four a single stroke across the wrist administered with one finger and labeled a spanking will often produce a flood of tears and have the desired effect. In no case should corporal punishment be given after the age of seven or eight years.

¶ *How may the training of children be simplified?*

By commencing training in infancy. An infant who has been properly trained in habits appropriate for his age period—habits of eating, sleeping, eliminating—will conform more readily to the training suitable for the later age periods.

The process of training a child—of converting a complete savage into a civilized human being—is best accomplished by gentle pressure, continuously applied, rather than by alternate periods of neglect and intense effort. Some opportunity for developing a new achievement—either a new skill or some form of self-control—should always be given a child, always using the technique of encouragement and rewards.

¶ *In what types of families are behavior problems commonly encountered?*

They are seen particularly in city children and are especially common in the case of only children.

The city child may suffer from neglect if his parents are busy and immersed in affairs outside the home.

More frequently his opportunities for self-expression are limited; he may be cramped within the confines of an apartment which is full of breakables and affords little opportunity for play, and tasks with which he may be entrusted to develop his responsibility are notably wanting.

The only child is usually the object of undue parental solicitude. He may get his share of affection, but concern and worry over what may befall him often limit his activities unduly. His parents have not had the benefit of observing other children at close range, and they are likely to exert undue pressure to make him conform to adult standards of behavior or to err on the side of spoiling him.

¶ *If a child exhibits antisocial behavior, or any of the specific behavior disturbances described below, what should be done?*

In the first place, it is important to make sure that no physical disorder is present. Not infrequently a child is irritable because he has some disease which has not been recognized. He should be given a thorough physical examination by a physician.

The next step is a thorough consideration of the child's life at home and at school, to see if some factor can be discovered which is upsetting him. Often the parents are able to discover and correct this. In other instances a more objective viewpoint, such as may be given by the family physician or a child guidance expert, may prove helpful. A direct attack upon the

manifestation itself may or may not be possible; such measures will be discussed in connection with particular disorders.

SCHOOL DIFFICULTIES

§ *What difficulties are likely to be encountered in the school?*

The difficulty may be some factor which is causing scholastic failure. A child may be in a grade beyond that for which he is suited, or his lack of success may be due to an unrecognized defect of vision or hearing; some children have peculiar reading defects which interfere greatly with their school work. A mental standardization (Binet-Simon test) will permit a more suitable grading of the child, and examination of the eyes and ears are indicated to see if any defects are present.

In other cases, the school difficulty may be the result of unwise handling by the teacher or of persecutions by schoolmates. Difficulties in school may be the result of worry over home difficulties.

HOME DIFFICULTIES

§ *What are the most common difficulties found in homes?*

The difficulties may be grouped under the three fundamental needs of the child, any one of which may be thwarted.

1. Among the factors which tend to deprive a child

of needed affection are: parents engrossed in outside activities, the presence of an unsympathetic personality in the home, the free use of parental disapproval rather than of praise in managing a child, favoritism between children and invidious comparisons which tend to rouse a child's jealousy.

2. The child's need for security in his world may be upset by parental discord, by lack of routine in his life, and by inconsistent demands and punishments. A child who is allowed to stay up late one night resents being put to bed at a fixed time on another occasion, and a child who is punished for an offense on one occasion and not on another becomes confused and resentful.

Changes in environment are often upsetting factors in a child's life that may be quite unavoidable. Worry over symptoms which a shy child is often afraid to mention, or over sexual matters, is frequently highly unsettling.

3. A child's need of self-expression or of successful accomplishment is often denied by a fearsome parent who underestimates the child's abilities. The same denial of successful achievement occurs in the case of an overambitious parent who sets a program of work beyond a child's capabilities or tries to force him into a mold for which he is unsuited. The "spoiled child," like the child who is driven, is denied the satisfactions of his own creative effort.

It is perhaps in this particular field—the adjustment of reward to effort—that parents are more likely to err than in any other, adopting, frequently, a policy dia-

metrically opposed to that which was employed with them in their youth. A parent who is conscious of wasted opportunities in his or her own life and attributes unfulfilled ambitions to this fact is likely to drive his child too hard in an effort to avoid this mistake, whereas a parent with unhappy memories of being driven in childhood often proves overindulgent to his own child.

¶ *What can be done to overcome these home difficulties?*

Once clearly seen—something that may require the objective viewpoint of a person outside the home—these difficulties can usually be corrected. For the child who needs more affection, even a brief period each day in which he has the parent all to himself may prove a great help and may bring out confidences that do not come out in the presence of other children. A pet will often make a great difference in a child's life. A visit to a sympathetic relative may bring relief from a home situation which for a time is unavoidably difficult.

Stability can be given to a child's world by an established daily routine and by being consistent in one's demands on him. In particular a united parental front should always be presented to him, differences of opinion in respect to his management being discussed in his absence.

The child who is overprotected by an apprehensive parent can, as a rule, be relieved of this difficulty only

when the parent can be given due moral support in allowing more freedom. Likewise, the parents of driven or of spoiled children will rarely have insight into the difficulty or correct it until outside help is sought because of some behavior disturbance.

In order for a child to develop resources of his own, it is highly desirable that his day be not completely occupied by organized activity of one type or another. He should be allowed some leisure to do what he has a mind to, as long as this does not annoy others. Children brought up in a rural environment are likely to find ample opportunities for self-expression. For those who live in cities such activities as are provided by organizations like the Boy Scouts may prove a valuable outlet.

§ *Should children be protected as far as possible from these various difficulties in school and in the home?*

It is not possible to do this, inasmuch as the best of teachers and parents are subject to human frailties. Nor is it desirable that a child's path be made completely smooth. Many conscientious parents cause themselves great worry and distress in trying to do this. It should not be forgotten that character is developed by overcoming difficulties and adapting to them. The ideal environment for a child is not one from which all difficulties are removed, but one in which they do not exceed a child's ability to adapt to them, with the result that he is frustrated and discouraged in the attempt.

NEGATIVISM (DISOBEDIENCE)

§ *How should a child be handled who refuses to do what he is told and often does just the opposite?*

As already explained, this is a normal reaction which is conspicuous at certain ages, particularly at the age of two or three years. Occasionally one can take advantage of this reaction and, by forbidding a child to do something we want him to do, can get him to do it, but more often this is unsuccessful. With the small child the best plan is to ignore the child's demonstrations of wilfulness as far as possible, knowing that this is merely a passing phase. Minor issues can be ignored altogether, and it is often possible to avoid a conflict on some major issue by diverting a child or making a joke of a situation. The use of tact is nowhere more of an asset than in handling this problem. A command given to a child in public may embarrass him or hurt his pride and on this account will encounter resistance, whereas the same command whispered quietly will evoke no such response. The management of the child whose negativism manifests itself in a refusal to eat is discussed elsewhere (see pp. 151, 204).

ANTISOCIAL BEHAVIOR

§ *How should children be handled who indulge in annoying behavior such as whining, teasing, and nagging?*

Such manifestations are often transitory. Frequently they are behavior patterns, observed in other children,

which the child decides to experiment with in his own family. The best treatment is to ignore the matter entirely or turn it aside as a joke. As soon as the child discovers that such techniques are ineffectual they will be dropped. Persistent behavior of this kind is a clear indication that it is serving some useful purpose to the child. It may be that the child's technique is successful in securing the immediate object he nags for, or if that is not the case, it may be a vindictive reaction based on some fundamental emotional deprivation.

¶ *What should be done in the case of a child who deliberately tells lies?*

One should appreciate the fact that such episodes are characteristic of a child's normal development. To take liberties with the truth is perfectly natural exploratory behavior in a young child who observes adults telling white lies and touching up events to make a good story. An imaginative child may go to extraordinary lengths of fabrication if an impressionable audience is at hand. It is not necessary to pay any attention to such flights of fancy, for a child soon learns that the penalty for untruths is not to be believed.

In older children these aberrations may have a different basis. A well-planned falsehood may be based on fear of punishment. There is no better way of training a child to lie than by administering severe punishments for his shortcomings. If the offense is such that punishment is unavoidable, the opportunity

to mitigate it by a full confession should always be given.

One should avoid tempting a child to lie. When the parent is in possession of the facts of a case the child should be confronted with them at once; it is unwise to feign ignorance to see what the child who is afraid of punishment may say and then to confront him with a lie as well as a misdeed.

¶ *What should be done with a child who steals?*

It is a mistake to regard this as evidence of moral turpitude and to deal with it severely. One should realize that the concept of private property is an artificial product of civilization. The desire to possess objects is innate, but respect for the possessions of others requires long training to develop. Such training is difficult if the child has an opportunity to observe adults who do not respect private property, or if the child's own possessions are not respected.

In the case of an older child, stealing may be the result of some fundamental dissatisfaction in a child's life, at school or in the home, for which he is trying to compensate. An effort should be made to discover and correct such difficulties, along the lines already discussed. Parents should avoid tempting a child to steal by carelessly leaving around money or other valuables. Here, as in other respects, training by rewards is better than by punishments. Increasing a child's allowance, provided he refrains from stealing, may terminate the practice entirely in the case of a child who has not had what he considers or what

actually may not be adequate funds for his social position.

§ *What should be done with the more serious forms of antisocial behavior, such as cruelty, aggressive behavior, destructiveness, truancy, running away from home?*

Cruelty is a savage trait, a form of vindictive behavior from which the child, who is inherently a savage, can gradually be educated. Aggressive behavior toward others or toward animals requires punishment, but one should be sure that this is not unduly severe and that the entire problem is discussed with the child later, when he is in a rational mood.

In older children these forms of antisocial behavior may represent mischievous pranks on the part of a high-spirited child who is insufficiently occupied. If such behavior is continued it is usually an expression of rebellion against some situation which the child regards as intolerable. Punishment alone will not solve the problem, which requires a study of the child's home and school difficulties and his physical condition as well.

TEMPER TANTRUMS

§ *How should a child with temper tantrums be managed?*

The tantrums should always be ignored. The persistence of this type of reaction is a clear indication that it is serving the child's purposes in some way.

BREATH-HOLDING SPELLS

§ *What are breath-holding spells, and how should they be managed?*

This is a type of reaction seen in infants and young children which is closely related to the temper tantrum and is sometimes associated with it. Following some event which enrages an infant, usually when he is crossed in some desire, he stops breathing entirely, turns blue, and may lapse into unconsciousness for many seconds. Such attacks cause great alarm to parents, who in consequence are willing to indulge the child in order to prevent or stop them. Although sometimes confused with convulsive seizures, the breath-holding spell is not a serious matter and even if nothing is done the child will start to breathe again spontaneously. The attack can usually be promptly terminated by a dash of cold water to the child's face. On no account should he be allowed to gain his way by this procedure.

MOTOR DISORDERS

§ *What should be done with a child who is always restless and fidgety?*

Such behavior is often seen in children confined in city apartments who do not have sufficient outlet for their activity. Every child needs an opportunity to play in some place where his noise will not annoy adults and where he is not in danger of breaking valuable things. When such opportunities are provided,

restless, fidgety behavior usually disappears. It must be borne in mind, however, that fidgetiness may be an early manifestation of chorea (St. Vitus' dance). If such behavior can not be attributed to undue restrictions or does not clear up when such restrictions are remedied, a physician's attention should be called to it.

§ *What are tics?*

A tic or habit spasm is an involuntary or largely involuntary act repeated at intervals, such as blinking an eye, shrugging a shoulder, scratching the head, etc. The act is always of a purposeful nature, but the original purpose has disappeared and the movement has become an almost uncontrollable habit.

§ *How should a child with a tic be managed?*

It is a mistake to call attention to the tic or to try and discipline a child for it; the attempt may only exaggerate the manifestation. A tic is a manifestation of emotional tension, and punishment only serves to exaggerate this. Such manifestations call for a careful consideration of all the factors in a child's life that may be upsetting him. When such difficulties are corrected the tic will disappear spontaneously.

§ *What is chorea (St. Vitus' dance)?*

It is a motor disorder characterized by sudden, aimless, jerky, involuntary movements of the muscles of the body. These movements differ from those of a tic in two respects: they do not resemble any purposeful

act, and they are continually changing, whereas in the case of a tic the same movement is repeated again and again.

Chorea is sometimes confused with tic and, in its early stages, is often regarded as mere fidgetiness. It is an organic disease of the nervous system and has nothing to do with maladjustment or emotional tension, but it is mentioned here only because of the similarity of its manifestations. Children with chorea require prompt medical attention and should be put under the direction of a physician without delay.

STUTTERING (STAMMERING)

¶ *What makes a child stutter?*

This form of speech block, in which the individual sticks on a syllable and tends to repeat it, being unable for the time being to complete a word, is an in-born peculiarity of certain children. In itself it is not an evidence of a maladjusted personality, as has been claimed by some, but there is no doubt that stuttering is greatly increased under conditions of emotional tension. It may occur only in certain situations or in the presence of certain individuals; it is particularly common in overdisciplined, repressed children. Stuttering is not infrequently seen in left-handed children who have been compelled to use their right hand for writing, eating, and other skilled acts; it is not to be regarded as the result of such training, but rather to the fact that the training is applied in such a way as to upset the child emotionally.

§ *How should stuttering be treated?*

The symptom itself should be ignored and accepted as a peculiarity of a child as characteristic as the color of his hair or any other feature he possesses. He should not be criticized for it, nor should he be helped with a word he is unable for the moment to finish. It is wise to consider carefully the child's entire environment to see if there are undue emotional difficulties that can be relieved. Special schools for speech defects are sometimes of help in overcoming this difficulty.

Many stutterers outgrow the condition entirely when the insecurity of adolescence is past or when, as adults, some fortunate circumstance brings added security and stability in their lives.

BAD HABITS

§ *What are the most common bad habits of young children?*

Sucking, nail-biting, dirt-eating, head-banging, bed-wetting, and masturbation.

§ *What do children suck?*

Most frequently the thumbs or fingers, sometimes the clothing or blankets, often the "pacifier" or rubber nipple.

§ *When is this habit most frequently seen?*

It begins in quite early infancy, and if not broken may last until children are six or seven years old.

¶ *Is the sucking habit a harmful one?*

When persisted in it may produce a misshapen mouth or fingers. It constantly stimulates the flow of saliva and it may lead to thrush or other forms of infection of the mouth. It is not necessary as a means of quieting a child, though it may in some degree cover up the consequences of bad feeding or bad training. On no account should the habit of sucking the pacifier be allowed as a means of putting children to sleep, or of quieting them while restless from dentition or indigestion.

¶ *How is the sucking habit to be controlled?*

One should be sure in the first place that the constant sucking of fingers is not due to hunger; at such times the sucking habit is especially likely to be practised. Sucking of the hands may often be controlled by wearing mittens or by winding a strip of adhesive plaster about the finger. In more obstinate cases it may be necessary to confine the elbows by small pasteboard splints to prevent the child from bending the arm so as to get the hand to the mouth. The hands should be fastened to the sides during sleep.

¶ *When is nail-biting seen, and how is it to be controlled?*

This habit is encountered in children over three years old. It occurs particularly in children who are under emotional tension, often in those who are suffering from fatigue and are physically below par.

A child who is a nail-biter deserves a thorough study

of his environment along the lines already discussed. In addition, the symptom may be attacked directly, not by punishments, but by rewards for refraining from this habit for a longer and longer time.

¶ *Under what conditions is dirt-eating seen?*

This habit may be seen in infancy but is more likely to occur in children from two to four years of age. Children may eat anything they can get their hands on, including wood and coal; they may chew the paint from toys or from their crib, and not infrequently they pull the hair from upholstered articles or from their own head and eat it.

Dirt-eating is common in children who are anemic, and in such cases it seems to be a craving based on a dietary deficiency. In other instances, the habit seems to be merely the persistence of an infant's tendency to put everything available into his mouth. Occasionally, it is an expression of a maladjusted child.

The habit may have serious consequences; children may get lead poisoning from gnawing lead paint from toys or their beds, and those who eat hair may in time develop a large "hair ball" in the stomach which must be removed surgically. Children with this habit should be closely watched and every means used to break up the habit early. Some physical or mental cause should be sought, although this is not always found.

¶ *Under what conditions is head-banging seen?*

Older infants and young children under three years of age may develop the habit of striking the head rhyth-

mically against the wall, the crib, or any hard object that is available. Similar behavior may occur at night when the child is half asleep, his head being struck rhythmically against the mattress or pillow.

The cause of this behavior, which may be very distressing to parents, is altogether obscure. It is not an indication that a child is undernourished, has diseased tonsils, or is suffering from worms, as has been supposed, nor is it evidence of mental deficiency or any form of brain disease. Children who practise this habit are, for the most part, quite normal; it seems to satisfy some basic need for rhythm. Head-banging is gradually outgrown, being rarely seen after the fourth year. It is a habit which need cause no concern, for a child will not bang his head hard enough to inflict injury.

¶ *How may a baby be trained to control his bladder in the daytime?*

Most babies can be trained to do this between the fifteenth and eighteenth month if a period of intensive training is given. One should select a free time each day, either in the morning or in the afternoon, for this training. During this period the baby is put on the chamber for a minute or two every fifteen minutes. For some time he may wet himself, but sooner or later he will urinate in the chamber, an act for which he should be promptly praised. By keeping up this training for a week or ten days, praising the baby when he performs properly but expressing no displeasure when he fails to do so, he will eventually realize

what he is expected to do, and thereafter will do it when he is placed upon the chamber at suitable intervals.

¶ *At what age may a child generally be expected to go without wetting the bed during the night?*

Usually at two and a half years, if taken up late in the evening. Some children acquire control of the bladder at night when two years old, and a few not until three years. After three years habitual bed-wetting is abnormal.

¶ *How should a young child addicted to bed-wetting be managed?*

The following measures may prove helpful:

1. Restricting fluids. A child should be given plenty of milk and water during the day, but no fluids after 4 P.M. Semifluid foods which consist largely of water, such as apple sauce and stewed fruits, should likewise be limited. A thirsty child may be given a little cracked ice to suck. The free use of salt with the evening meal tends to cause temporary retention of fluid in the body and decreases the amount of night urine; a few saltine crackers given at supper may be of assistance.

2. Increasing water elimination by other channels. It is a common observation that bed-wetting often disappears in hot summer weather when a child is perspiring freely, only to return with cold weather. The liberal use of blankets in cold weather may correct this situation.

3. Getting the child up at night. This should be

done regularly at 10 P.M. or whenever the parents retire.

These measures will usually suffice in training young children. With older ones in whom the habit has continued for years, additional measures may be needed.

4. Relieving emotional tension. Under the influence of emotions the bladder contracts, causing the desire to void. This mechanism does not, of course, operate during sleep, but the child who is emotionally tense much of the daytime voids frequently during the day and usually has a small bladder capacity, one which may be insufficient for the quantity of urine secreted at night. Relieving a child of emotional stresses will gradually correct this situation. In addition, the bladder capacity may be increased by

5. Stretching the bladder. This is accomplished by having the child keep a written record of his voidings by day, and by offering rewards for holding his urine for longer and longer intervals.

6. Obtaining the coöperation of the child. This is essential if anything is to be accomplished. Many older children are very sensitive about this difficulty and are only too glad to coöperate, whereas others are indifferent. In some instances fear of the dark or a long distance to the bathroom discourages a child from getting up at night, or it may be merely the unwillingness to leave a warm, cozy bed. A regular system of rewards should be devised for different degrees of achievement in the control of bed-wetting. A useful plan is to have the child keep his own calendar record,

a gold star being pasted on for dry nights. Punishments should not be employed.

When real coöperation is once secured and all the effective measures are put into practice, it is often surprising how quickly some of the most persistent bed-wetters can be controlled. If the condition is neglected, on the other hand, it may continue to the age of puberty and even beyond this.

It must not be forgotten that the formation or the continuance of the bed-wetting habit may have some physical cause; a child may be in poor general condition or may have some irritation in the urine or in the genital organs. Before starting an intensive course of training it is wise to have the urine examined and to have the child examined by a physician.

§ *What is masturbation?*

It is the habit of stimulating the genital organs. In older children it is usually done with the hands, but in infants it may be done in other ways, such as rubbing the thighs together. Sometimes a child sits upon the floor, crosses the thighs tightly and rocks backward and forward. This is often regarded as a "queer trick," its nature not being appreciated. Masturbation may be seen at any age, but cases in infancy are seen almost exclusively in girls. The fact that a baby handles his or her genitals to some extent is not an indication that he is masturbating. This may be merely a part of a child's normal exploration and need not be taken seriously.

In infants masturbation usually starts because of

some irritation in the region of the genitals which causes a child to rub these parts, directly or indirectly. In older children masturbation may be discovered in the normal course of self-exploration or it may be taught by other children.

§ *To what does masturbation lead?*

There is no evidence that it causes feeble-mindedness, as was once believed. Feeble-minded children often practise this habit, but it is to be regarded as the result, rather than the cause, of the mental condition.

In the great majority of instances masturbation is a transitory phenomenon and leads to no harm. If practised frequently and over many years, it becomes increasingly difficult to break up. Such children may exhibit morbid preoccupations with matters of sex to the exclusion of other normal activities. The chief harm, however, comes from unwise handling of the problem.

§ *How should a child with this habit be treated?*

Since a local cause of irritation is often responsible, medical advice should always be sought. Often this can be cleared up and the habit will promptly cease. This is the situation in most of the cases seen in infants.

Mechanical restraints are occasionally helpful in breaking up the habit in infants; in older subjects, these are of no value. The best plan to pursue with an infant is to watch him carefully and divert him with a

toy or otherwise when there is evidence of masturbation.

For the young child of three or four years diversion is also the most successful form of treatment. Children should be especially watched at bedtime and nap-time, when they are likely to practice the habit. One should not insist on a child's sleeping during the day if he is not sleepy; it is better to have suitable toys available within reach of his bed. Such a child should also be watched during his bath.

It is with the child who is old enough to reason that the situation is often unwisely handled. Threats and punishments should never be employed, nor should a child be alarmed by statements that the habit will make him "nervous" or feeble-minded; the term "self-abuse" is an unfortunate one that has been responsible for much needless anxiety. On no account should a child be given the impression that masturbation is something morally wrong. The act should be explained as a perfectly natural physical habit which admittedly gives pleasure but one which every child must learn to control, just as he learns to control other impulses. He should be encouraged in the belief that the habit will be transitory and that he will succeed. The technique of diverting himself to other occupations when he feels sex pressure may be suggested to him, and rewards may also prove helpful.

In many cases some fundamental emotional difficulty may be responsible for the continuation of masturbation. The child who seeks solace in this manner may not be getting the normal satisfactions of life.

¶ *How can many sex problems of older children be avoided?*

By giving children sex information that is in keeping with their age and their natural curiosity. A child's questions should be answered frankly and his curiosity satisfied as far as it goes. Parents who experience difficulty in doing this should put good sex literature into the hands of their children.* It is a mistake to leave sex education to a child's playmates.

SLEEP DISTURBANCES

¶ *What can be done for children who suffer from disturbed sleep and have nightmares?*

In infants and young children, restless sleep may be due to some digestive disturbance. It is often helpful to give the hearty meal in the middle of the day and a light supper at night. Sleeping on the back is also a factor in many cases. In older children, some cause of

* The following works may be found useful:

Corner, G. W., *Attaining Manhood* (New York, Harper and Brothers, 1938).

——, *Attaining Womanhood* (New York, Harper and Brothers, 1939).

Dennett, M. W., *The Sex Side of Life* (New York, M. W. Dennett, 1928).

De Schweinitz, C., *Growing Up* (New York, The Macmillan Company, 1930).

Rice, T. B., *The Story of Life* (Chicago, American Medical Association, 1939). For boys and girls of ten years.

——, *In Training* (Chicago, American Medical Association, 1939). For boys of high-school age.

——, *How Life Goes On and On* (Chicago, American Medical Association, 1939). For girls of high-school age.

anxiety or emotional tension may be responsible for sleep disturbances, or perhaps undue excitement at bedtime; in other cases no cause can be discovered. Disturbed sleep is, of course, often seen in children who are ill.

§ *Is there any harm in permitting a child to take a toy to bed with him?*

Many children derive great comfort from having a toy animal in bed with them and may continue this practice until they are seven or eight years old. There is no reason why they should be denied the comfort of a toy, and they often sleep better than when they are denied it.

INVALID REACTIONS

§ *What should be done with a child who feigns illness?*

Almost every normal child uses this technique at one time or another to escape some unpleasant situation. The practice ceases as soon as it fails to achieve the desired end.

Some children, however, are perpetually complaining of symptoms for which the doctor can find no explanation, even after the most thorough kind of examination. This chronic-complaint (hypochondriac) habit is seen particularly in unhappy children who seek to gain attention. A child who has received much attention during an illness may be unwilling to give this up and tends to prolong the symptoms indefi-

nately. In other cases the habit of complaining of pains and aches is copied from some adult.

A child with hypochondriac trends is not well adjusted to his environment. After a thorough medical examination one should consider the school and the home situation to see what difficulties may be corrected. The child's symptoms should not be ignored, for they are very real to him and are causing him genuine concern. One should explain to him that some pains are caused by real disease and that others have no importance whatever, and that when the doctor has given the assurance that a pain is not caused by disease the best thing is to ignore it.

NEUROSES

¶ *What is a neurosis (hysterical reaction)?*

It is a symptom or group of symptoms that simulates organic disease but which is really the expression of some maladjustment in a child's life. It differs from an invalid reaction in that it is an unconscious reaction on the part of the child; he is not aware that the symptom is serving his purpose in any way but believes it to have some genuine organic basis.

¶ *How may a neurosis manifest itself?*

It may simulate any disease or disease manifestation which the child has ever witnessed or heard of. There may be disturbances of sensation, such as blindness, deafness, or loss of feeling over some part of the body, or there may be pain or abnormal sensations in any

location. In other instances, there are motor disturbances, such as paralysis or weakness of some part of the body, loss of speech, or very abnormal movements; there may be convulsions or attacks of fainting. The symptoms may be found in any organ of the body: there may be palpitation of the heart, cough or shortness of breath, constipation or diarrhea; vomiting is one of the commonest neurotic manifestations.

§ *How can a neurosis be recognized?*

This may be a difficult matter even for a physician, for in some instances organic disease is very closely simulated. In other instances, the child's knowledge of disease is so inaccurate that the picture he presents differs markedly from that of organic disease. A child may be unable to walk, but when his legs are tested lying flat in bed no muscular weakness or lack of coordination is noticeable. It is characteristic of neurotic manifestations that they are not accompanied by fever; they are usually more marked when the subject knows that he is being observed, and they are not such as to cause a child bodily injury. A child who falls in a fainting attack does not hurt himself. It is characteristic of neurotic vomiting that the preliminary nausea and retching are absent; the contents of the stomach are brought up easily with little or no discomfort.

§ *How should a child with a neurosis be managed?*

The situation to which the child is reacting in this way may be hard to discover, for the child who has ad-

justed to his difficulties in this manner is no longer oppressed by them; he is usually contented and happy and no longer thinks about them. It may require the help of a psychiatrist or some one who can view the environment in a more objective way than the parents to discover the sources of dissatisfaction in the child's life which underlie the neurosis. When steps are taken to correct these the neurotic manifestation will usually disappear by itself. The symptom itself should be ignored or treated by suggestion.

Part 8

COMMON AILMENTS
OF CHILDHOOD

COMMON AILMENTS OF CHILDHOOD

HOW TO KEEP CHILDREN WELL

¶ *What can be done to keep a baby well?*

The measures described in connection with care and feeding are all directed toward that end. Those which deserve particular emphasis are the following:

1. Breast feeding during the early months, when feasible.
2. Careful sterilization of artificial feedings.
3. Boiling the water given to infants.
4. Vitamin supplements to prevent rickets and scurvy.
5. Proper screening from insects to protect against such diseases as malaria, typhoid fever, dysentery, and infantile paralysis.
6. Avoiding kissing and refraining from exhibiting babies to groups of people, from one of whom an infection may be acquired.
7. A health examination for any one who cares for a baby.

8. Protective inoculations against certain infectious diseases.

9. Regular weighings.

10. Regular medical examinations by a private physician or in a well baby clinic.

¶ *What additional measures need to be kept in mind in the case of older children?*

The most important are training in health habits and the protection of children from bodily injury (see p. 298).

THE EXAMINATION OF SICK CHILDREN

¶ *By what nursery training may the examination and treatment of sick children be made much easier?*

By teaching all children to show the throat and to take tablets, and by constantly teaching them to regard the doctor as the child's best friend, and his visits as a great treat. On no account should a child be frightened into obedience by threats of what the doctor will do.

SIGNS OF ILLNESS

¶ *How does infectious disease show itself in infants?*

There may, of course, be local evidences of disease, such as a cough, a rash, a discharge from the ear, etc., but in many instances local signs of illness are wanting. There may be only fever and constitutional symptoms—a child may be fussy and irritable, may lose weight, refuse food, or develop a digestive upset.

§ *What should be done when a child shows the first symptoms of serious illness?*

He should be put to bed. If an infant, it is usually advisable to reduce the quantity of milk and always to give additional water. In an older child only fluids should be given. If the child seems feverish, the temperature should be taken. No medicine, not even a cathartic, should be given without the doctor's orders. The doctor should be called at once, and until he comes all other children should be excluded from the room.

THE TEMPERATURE

§ *What is the normal temperature of an infant?*

The normal temperature is somewhat less constant than in adults. In the rectum it usually fluctuates between 98° and 99.5° F., but variations between 97.5° F. and 100.5° F. are not uncommon, even in healthy infants.

§ *Where should the temperature of infants and young children be taken?*

The rectum is altogether the best place.

§ *How long should the thermometer be left in place to take the temperature?*

Never less than two minutes, and always a full minute longer than the directions given with the thermometer.

§ *Is the temperature of a young child a good guide as to the severity of his symptoms in illness?*

As a rule it is. A temperature of 100.5° to 102° F. commonly means a mild illness, and one of 104° F. or over, a serious one. The duration of the fever is, however, even more important than the height of the temperature. It should be remembered that in all young children slight causes often produce a high temperature which lasts for a few hours; one should not therefore be unduly alarmed unless the temperature continues high, or is accompanied by other important signs of illness.

§ *Is not a high temperature a more serious symptom in a young child than in an adult?*

The opposite is rather the case. Young children are extremely sensitive to conditions which produce fever, and the thermometer often gives an exaggerated idea of the severity of the symptoms. A cause which in an adult might produce a temperature of 102° F. or 103° F. in a young child would very likely to be accompanied by a temperature of 104° F. or 105° F.

TAKING COLD

§ *How are colds "caught"?*

The common cold is an infection which is "caught" from some one else, but there is no doubt that chilling, exposure to draughts, and other factors lower the body's resistance and increase the likelihood of catching the infection.

¶ *Why do some children take cold so readily?*

All children are more susceptible than adults. Some are especially so because of inherited tendencies or by the manner in which they are housed, clothed, or fed. Infected adenoids or tonsils may also make a child more liable to colds.

¶ *What can be done to lessen this susceptibility?*

Infected adenoids and tonsils should be removed; this alone rarely cures the condition, but it usually does decrease it.

Large amounts of carbohydrate food—cereals, sugar, and sweets—are apt to increase the trouble. The use of more fats seems to diminish it.

The clothing is apt to be too heavy. Only underclothing of medium weight should be worn, and the outer clothing should be light while in the house. Even when out of doors the clothing should not be so heavy as to cause the child to perspire freely with his exercise.

The nursery should be kept cool. A temperature of 65° or 66° F. is best. When the room is kept at a higher temperature a child perspires freely at his play, and in consequence he becomes more susceptible to colds than ever. Sleeping rooms should be cool, and plenty of fresh air allowed unless the child is suffering from a fresh cold.

A morning cold sponge bath is of great assistance. It should be given in a warm room, and the child should stand in a tub with sufficient warm water to cover his

feet. A sponge filled with very cold water should then be squeezed three or four times over his neck, shoulders and chest. For the best results the water used must be quite cold (50° to 55° F.) and the bath very short—less than half a minute. The child is then removed from the bath and rubbed briskly with a coarse towel until he is in a glow. A good reaction must be secured, or no benefit follows. If the child remains blue and cold, the bath has been improperly given and should not be continued in the same way.

A warm soap-and-water bath may be given at night two or three times a week just before the child is put to bed.

Colds are relatively infrequent in summer, and children who can be moved to a warm climate in winter are less likely to contract colds there.

§ *Are not vaccines useful in preventing colds?*

It is doubtful if they are of any value. The only certain method of preventing colds is by isolating a child from any one who has a cold.

§ *To what extent is it practicable to isolate children in order to protect them against colds?*

With infants and young children this is a very important matter, for at this early age the complications of a cold are likely to be more serious. Contact with other children or adults suffering from colds should be avoided so far as possible. When such contact is unavoidable, the individual with a cold should wear a gauze mask covering the nose and mouth.

With children of school age it is almost impossible to enforce such strict isolation—either in school or at home—as to prevent colds. One must usually be content if children contract no more than the average number of two or three colds a year.

¶ *When are colds particularly likely to occur?*

They tend to occur in epidemics at certain times of the year with considerable regularity—a fall epidemic, shortly after the opening of schools, a winter epidemic which follows the Christmas holidays, and a less regular spring epidemic. Many summer colds are in reality instances of hay fever, due to the presence of some pollen in the atmosphere (“rose cold”).

¶ *How should a child with a cold be treated?*

Laxatives and enemas are *not* indicated. Children with colds often have infrequent bowel movements, but this is due to their decreased food intake; there is no evidence that they are benefited by purgation. The food should always be reduced, but fluids and particularly fruit juices should be freely given. The child should be kept indoors, and if there is fever (a temperature over 100.5° rectal) he should be kept in bed until the temperature returns to normal. A warm room is to be preferred.

¶ *Are not drugs helpful?*

Relatively little can be accomplished by drugs. The course of a cold can not be shortened by them, but

there is evidence that some of the newly developed sulfa drugs will reduce the frequency of complications, such as infection of the ear. In any case, it is unwise to give either internal or local medication except under the direction of a physician. The widely advertised popular remedies should by all means be avoided: not only are they ineffectual, but many of them are capable of doing harm. Many instances of aspiration pneumonia have been caused by the use of oily nose-drops in infants. It has also been found that many of the preparations designed to soothe the mucous membranes actually paralyze the cilia. The cilia are minute microscopic hairs which line the mucous membrane of the air passages; they beat in unison and by this means help to expel foreign particles and mucus. When they are paralyzed an important defense mechanism of the body is put out of commission.

§ *What is the proper method of blowing the nose?*

First one nostril should be compressed when the blowing is done, then the other as the blowing is repeated. Never should both nostrils be compressed at the same time while the child blows forcibly.

§ *What harm may this do?*

Forcible blowing with both nostrils compressed is likely to force secretions and bacteria into the middle ear, and serious inflammation may follow. This is an important matter, and all children should be properly trained in this respect from infancy.

SORE THROAT

§ *What should be done in the case of a child who has frequent attacks of sore throat?*

A sore throat is a more serious matter than an ordinary cold in the head. Severe attacks require internal medication under the direction of a physician, and in many instances such medication is desirable in mild attacks. Children who have frequent sore throats are more liable to develop kidney disease or rheumatic fever than those who do not. It is important, therefore, that they have regular physical examinations several times a year.

The removal of some focus of infection in the throat, such as infected tonsils and adenoids, often reduces the tendency to recurring sore throats. The general hygienic measures mentioned in connection with preventing colds may also be helpful.

EARACHE

§ *What are the symptoms of earache?*

The pain is generally severe and accompanied by crying; the child often puts the hand to the affected ear, or cries whenever it is touched. The pain is likely to be prolonged and continuous.

§ *How should a child with earache be treated before the doctor arrives?*

One should not attempt to introduce anything into the ear. The pain can often be relieved by the appli-

cation of heat. An electric pad is particularly useful for this purpose. If this is not available, one should cover the ear with cotton and apply a hot water bag or a hot plate over this. If there is a discharge of pus from the ear, a physician's attention should be called to it, even if no pain is present at the time.

CROUP

§ *What is croup?*

It is a spasm of the larynx and may be caused by a mild or a severe inflammation of that organ.

§ *What are the symptoms of croup?*

There is a hollow, dry, barking cough, with some difficulty in breathing.

§ *When is this likely to come on?*

Usually at night.

§ *Is simple croup dangerous?*

The ordinary croup of infants, spasmodic croup, is very rarely dangerous, although the symptoms seem very alarming.

§ *What are the symptoms?*

In a mild attack there is simply noisy breathing, especially on drawing in the breath, with a tight, barking, or croupy cough. In a severe attack the child's breathing is more noisy and becomes difficult.

§ *What should be done for a baby who has spasmodic croup?*

The room should be very warm, hot cloths or poultices should be applied over the throat, and either a croup kettle or an ordinary tea kettle kept boiling in the room. This is more efficacious if the child is placed in a tent made by a raised umbrella with a sheet thrown over it, and the steam introduced beneath the tent. If the symptoms are urgent, ten drops of the syrup of ipecac should be given every fifteen minutes until free vomiting occurs.

§ *What is the dangerous form of croup?*

Membranous croup. This may be due to diphtheria or to some other severe infection of the larynx. It is also known as acute laryngo-tracheo-bronchitis. The symptoms of this condition are similar to those of spasmodic croup, but come on gradually and are much more severe. Since the two kinds of croup are easily confused, a doctor should be summoned without delay in all cases of croup. In the severe form delay in treatment is likely to prove serious.

ADENOIDS

§ *What are adenoids?*

The name is given to a mass of lymphoid tissue which is situated back of the nose in the upper part of the throat.

§ *Do all children have adenoids?*

Yes; they are one of the normal structures of the throat.

§ *Under what circumstances do they require removal?*

When they become much enlarged or are the seat of disease.

§ *What are the signs of much enlargement?*

Mouth breathing, restlessness at night, or snoring respiration during sleep, and in marked cases narrowing or sinking in of the lower part of the chest, owing to obstructed breathing and interference with the general health and normal growth. Also, there may result a narrowing of the dental arch of the upper jaw leading to deformity of the mouth.

§ *What are the signs of diseased adenoids?*

The most common are frequently recurring acute head colds and sore throats or a chronic nasal discharge, and swelling of the glands of the neck. There may also be attacks of earache or more serious inflammation of the ears, resulting in abscesses which may discharge for a long time.

§ *Should all children have adenoids removed?*

When either group of symptoms mentioned above is present this should be done, and if both groups are present removal is imperative. When none of these symptoms exist operation is unnecessary.

§ *At what age should the operation be done?*

The time of operation is determined not so much by the age of the child as by the urgency of the symptoms. It may be necessary at any age, even in an infant under one year. Generally speaking, operation should be deferred until the child has passed the age of two or three years, as the chances of recurrence are somewhat less than when the operation is done in infancy.

§ *Are adenoids likely to recur after removal?*

If the operation is properly performed this occurs only in a small proportion of the cases, perhaps 10 or 15 per cent.

ENLARGED TONSILS

§ *Under what circumstances should the tonsils be removed?*

The symptoms requiring removal are much the same as those described with adenoids. The tonsils should be removed if they are so large that they obstruct respiration, or if, by inspection, they are seen nearly to meet in the throat. Also, when they are the seat of chronic disease. Often they are ragged, irregular, soft and spongy, although they may not be greatly enlarged.

As a rule the removal of tonsils should be postponed until a child is three years of age, but at times it is necessary to remove them earlier.

¶ *Are there any dangers from operation upon tonsils or adenoids?*

If the operation is properly performed, the risk is very slight indeed, but in rare cases serious hemorrhage may occur.

SINUS DISEASE

¶ *What is sinus disease?*

The sinuses are cavities in the bones of the skull which are connected by small openings with the interior of the nose; they are lined with mucous membrane and are normally filled with air. With nearly every cold in the head there is some involvement of the mucous membranes of the sinuses and some discharge from them which drains freely into the nose. This clears up when the cold is over and is not recognized as sinusitis. This term is applied particularly to chronic sinus disease, in which the infection continues to drain for a long time, causing a chronic discharge from the nose, or to cases in which the outlet from an infected sinus becomes plugged, causing headache and fever.

¶ *What can be done for sinus disease?*

Chronic disease of the sinuses is less common in children than in adults and has a greater tendency to subside spontaneously. Its local treatment belongs to the nose and throat specialist. In persistent cases a warm, dry climate is beneficial.

PNEUMONIA

¶ *What are the early signs of pneumonia in children?*

The characteristic signs, which are not always present, are: high fever, prostration, and rapid breathing with a grunting expiration. These symptoms may develop out of a clear sky or may occur in the course of what appears to be an ordinary cold.

¶ *What should be done for a child with these symptoms before the doctor arrives?*

It is not necessary to administer a laxative, an enema, or a poultice to the chest. The best thing to do is to give the child plenty of fluids and little or no solid food, and to let him rest as quietly as possible.

CONTAGIOUS DISEASES

¶ *What are contagious diseases?*

The infections commonly designated by this term are: measles, German measles, scarlet fever, chickenpox, whooping cough, diphtheria, and mumps. Other infections, such as pneumonia and epidemic meningitis, are also conveyed by direct human contact, but the danger of contracting them upon exposure is decidedly less. Still other infectious diseases, that may be acquired through contamination of food or water or transmitted by insects, are not considered in this group.

§ *Which of these diseases are most contagious?*

Measles, German measles, and chickenpox are very contagious; few children who have not had them can escape when exposed to the disease. Whooping cough is almost as contagious. With scarlet fever, diphtheria, and mumps, there is distinctly less likelihood of contracting the disease upon exposure.

M E A S L E S

§ *What are the first symptoms of measles?*

Measles comes on rather gradually with slight fever, cough, sneezing, watery eyes and nose, much like an ordinary severe cold in the head. The eruption appears after three or four days, first upon the face and neck as small red spots, and spreads slowly over the body.

§ *What is the incubation period?*

The first symptoms appear in from nine to fourteen days after exposure (rarely as late as twenty days).

§ *When and how is measles contagious?*

Measles may readily be conveyed from the very beginning of the catarrh, two or three days before any eruption is present. It is very seldom carried by healthy persons. The infectious agent does not cling to a sick-room.

A child who has had measles should be isolated until the rash has gone; beyond that time there is no danger that he will convey the disease.

§ *Is measles a serious disease?*

In infants, and during the winter season, it may be so because of the danger of pneumonia which frequently accompanies it. No young child should be voluntarily exposed to this disease, and infants and delicate young children should be protected against it in every way possible. If exposed, they should be immunized.

§ *How can this be done?*

The injection of blood or blood serum from a person who has had the disease, if given early in the incubation period, will either prevent the disease entirely or render the attack a very mild one. Commercial preparations are also available which will give such protection.

§ *Are children so immunized permanently protected against measles?*

If the immunization has been such as to prevent the disease entirely, a permanent protection is not obtained; the child remains immune for a few weeks only. But if the disease has only been "modified" and a mild attack has resulted, the child will be permanently protected against measles in practically all instances.

GERMAN MEASLES

§ *What is German measles?*

German measles, or rubella, is a distinct disease and has nothing to do with ordinary measles. It is extremely rare for a child to be very ill with it. There is

usually a very extensive eruption which may cover the body, but few other symptoms. The incubation period is from ten to sixteen days, and the disease is contagious during the time the symptoms are present.

¶ *Should children be protected against this disease?*

The disease is such a mild one and the danger of complications so slight that it is scarcely worth-while to protect children from it. Most health departments no longer require that children with this disease be isolated.

SCARLET FEVER

¶ *What are the first symptoms of scarlet fever?*

Generally it begins abruptly, with vomiting, fever, and sore throat. The eruption usually appears within twenty-four hours as a red blush, first upon the neck and chest, which spreads rapidly.

The incubation period is usually from two to five days.

¶ *When and how is scarlet fever contagious?*

Scarlet fever is most contagious at the height of the disease. Mild cases are quite as contagious as severe ones. In fact, it is by the mild, unrecognized cases that the disease is often spread.

Patients are capable of conveying the disease long after the rash has subsided. The usual period of quarantine is three weeks from the beginning of the disease, and longer if there is a discharge from the nose, ears, throat, or glands.

¶ *Is scarlet fever a serious disease?*

In recent years scarlet fever has become a mild disease in the United States and not greatly to be feared. Severe outbreaks are still seen in many parts of the world, and severe cases are occasionally seen in this country.

¶ *Should children be protected against scarlet fever?*

They should, of course, be protected from exposure to patients. The question of protective inoculations is still debated by physicians. It is possible, by means of inoculations, to prevent children from getting the rash of scarlet fever, but they are still susceptible to the streptococcus which causes the disease and can still develop the sore throat and various complications. Since the protective inoculations must be repeated each year, and since these inoculations may cause a rash not unlike that of the disease, there would seem little to be gained by this procedure.

A child who has had scarlet fever should be isolated from a patient quite as carefully as one who has not had the disease. Although typical second attacks *with a rash* are almost unknown, it is possible to catch the streptococcus infection from the patient and to acquire the sore throat and possibly complications of the disease.

CHICKENPOX

¶ *How does chickenpox begin?*

It usually comes out gradually, as widely scattered pimples over the scalp, face, and body, many of which

soon become small vesicles, resembling tiny blisters, and afterward dry to form crusts. There is itching and local discomfort, but little fever, and the child rarely seems to be very ill.

The incubation period is from fourteen to sixteen days.

¶ *When and how is chickenpox contagious?*

The disease is contagious only while the skin lesions are developing and continues so until the crusts fall off.

¶ *Should children be protected against chickenpox?*

It is not possible to protect against chickenpox by inoculation. It is customary to isolate patients with this disease, but the disease is itself such a mild affair in the great majority of instances that the protection of other children in the home is not a matter of great importance. It is better to have chickenpox in childhood than in adult life, for attacks in adults are likely to be more severe.

WHOOPING COUGH

¶ *How does whooping cough begin?*

For a week or ten days it can not be distinguished from the cough due to an ordinary cold on the chest. Then the attacks of coughing gradually become more severe, especially at night, the child gets red in the face, the eyes water with the paroxysm, and vomiting may follow. After a severe coughing fit the breath is

caught with a peculiar noise known as the "whoop."

The usual incubation period is from five to ten days.

¶ *When and how is whooping cough contagious?*

It is contagious from the beginning of the catarrhal symptoms, long before the whoop develops. From four to six weeks' isolation is required by most health departments, and very exceptionally it has been conveyed as late as the seventh week. The "whoop" may, however, continue much longer than this, long after the child has ceased to be infectious.

Whooping cough is often spread by mild cases who do not develop the characteristic whoop but seem only to have an ordinary cold and cough.

¶ *Is whooping cough a serious disease?*

During the first two years of life it is likely to be very serious, and it is of the greatest importance to protect infants from getting it. After this time the consequences are less serious, although it continues to be a most annoying disease.

¶ *What should be done to protect children from whooping cough?*

The protective measures available at present are only partially successful. It appears that vaccines, given in appropriate doses, will cause some reduction in the incidence of the disease but can not be counted on to protect against it. There is also evidence that when the disease occurs in vaccinated subjects there are fewer severe attacks. Such protection as seems to

be conveyed by vaccines requires months to develop and is therefore ineffective in the presence of an epidemic.

Although statistics differ as to what may be accomplished by whooping-cough vaccines, it would seem desirable to use this procedure at least in the case of infants and up through the third year. There is no objection to their use at any age, provided one realizes their shortcomings and does not obtain a false sense of protection. Complete isolation of infants not only from cases of whooping cough but from individuals with ordinary colds and coughs remains the most important measure in preventing the serious consequences of this disease.

D I P H T H E R I A

§ *How does diphtheria begin?*

Sometimes abruptly, but more often gradually with sore throat and swelling of the glands of the neck, with white patches upon the tonsils, or a discharge, which may be bloody, from the nostrils. It may begin with croup.

It is important to call a physician in such cases in order that antitoxin may be given early and the disease checked.

§ *How long should a case of diphtheria be isolated?*

Until cultures show that the nose and throat are free from diphtheria organisms, usually a matter of two to four weeks.

§ *How can diphtheria be prevented?*

By inoculations of diphtheria toxoid it is possible to provide a child with a lifelong immunity against the disease in nearly every case.

§ *Should all children be given this treatment?*

Some children have a natural protection against this disease and do not need it. A skin test known as the Schick test will show if this natural protection is present. It will also show whether the toxoid treatment has been successful.

Unless a child has been tested and found to have a negative Schick test he should be immunized with toxoid. It should be done when a child is six months old. If, for any reason, this has been neglected, it is important that it be attended to before a child is sent to school.

§ *Should the combined diphtheria and tetanus toxoid be used?*

By all means this is to be preferred. It causes no more disturbance than diphtheria toxoid alone and it also protects against tetanus (lockjaw). Although tetanus is not a common disease, it is a highly dangerous and often fatal one.

MUMPS

§ *How does mumps begin?*

As a swelling upon the jaw, just beneath the ear. As it increases it extends forward upon the cheek and backward behind the ear. It may affect one or both sides.

¶ *When and how is mumps contagious?*

It is contagious as long as any swelling persists and probably for a few days thereafter.

The incubation period is a long one—usually between seventeen and twenty-one days.

¶ *Is it important to protect a child from mumps?*

Under most circumstances it is not. Young children are unlikely to contract the disease, and in them it is usually mild. On the whole it is preferable to have the disease in childhood than to acquire it after the age of puberty, at which time it is likely to be more severe.

PREVENTIVE INOCULATIONS

¶ *What preventive inoculations should be given to children?*

Every child should be immunized against smallpox and diphtheria. These are the most important of the protective measures. Since tetanus immunization can be carried out with the diphtheria immunization without added trouble, this, too, should be done routinely. As explained above, it also seems advisable to vaccinate all infants against whooping cough. Other immunizations are indicated only in particular circumstances, as for instance, the protection of exposed young subjects against measles and the inoculation against rabies for a dog bite. Typhoid vaccination is indicated only when the disease is prevalent or the

water supply questionable; it is indicated for traveling in foreign countries. Inoculations against tick fever should be given when this disease is prevalent.

§ *Nowadays, when smallpox occurs so seldom, is it necessary to have every child vaccinated?*

It should by all means be done. It is only by the practice of general vaccination that smallpox is kept down. In countries or in communities where vaccination is neglected, general outbreaks of smallpox occur every now and then just as in olden times.

§ *What is the best time for vaccination?*

The time usually selected is about the sixth month. It may be deferred in the case of a feeble or premature infant who is not likely to be exposed to smallpox. It should not be attempted in a child suffering from any form of skin disease, and an unvaccinated child with skin disease should be carefully guarded from contact with a freshly vaccinated child until the vaccination reaction has healed.

§ *Which is preferable for vaccination, the arm or the leg?*

The part which can be most easily protected and kept at rest is to be chosen. In infants who are not yet able to walk or creep and in girls the leg is to be preferred; in boys, the arm. If older children are vaccinated on the leg, they should not be allowed to walk while the vaccination is active.

§ *When should vaccination be repeated?*

An unsuccessful vaccination proves nothing and should be repeated in two or three weeks. If successfully vaccinated in infancy, a child should invariably be revaccinated before puberty. If exposed or likely to be exposed to smallpox at any time, vaccination should be repeated.

INFANTILE PARALYSIS

§ *What can be done to protect a child from poliomyelitis (infantile paralysis)?*

It is seldom practicable to remove children from the region where the disease prevails, and even this does not guarantee protection since the disease may occur sporadically in any region. It now seems clear that one important means by which this disease is spread is by flies which have been in contact with the fecal discharges of patients; it is also possible for food and water to be contaminated. In the presence of an epidemic of this disease, the greatest care should be taken in screening against insects; drinking water should be boiled, and raw foods should be avoided; those who prepare foods should exercise care in washing their hands. These same measures are important in the control of other diseases that are similarly spread, such as dysentery and typhoid fever.

INFANTILE DIARRHEA

§ *What are the two kinds of diarrhea seen in infants?*

In older children diarrhea is often caused by some dietary indiscretion, but this is rarely the case in the first year or two of life. In infants diarrhea commonly results from one of two causes: (1) the digestive function is upset by an infection located in some other part of the body such as the throat, the ears, or the urinary tract—often such a mild one as to escape detection—or (2) the condition is due to a disease-producing organism in the intestine itself which causes an inflammation there. This latter condition is called *dysentery*, and it is usually caused by a particular organism—the dysentery bacillus.

§ *Can one distinguish between the two varieties?*

It is not always possible to do so. As a rule, the diarrhea of dysentery is more severe; the stools have much mucus which may be pinkish or frankly streaked with blood. There is usually fever, and vomiting often occurs.

§ *If a child is taken with acute diarrhea, what should be done?*

Diarrhea in an infant is a serious matter and medical care is indicated. The physician may be able to discover the cause of the diarrhea and to give it appropriate treatment. He will also be able to protect the child from some of the more serious consequences of the diarrhea. Home medication should not be at-

tempted, and much harm may be done by the unwise use of laxatives in this condition.

The most important consideration in any severe case of diarrhea is to keep the baby from becoming dehydrated (dried out). Sweetened water, thin broth or a dilute salt solution (one level teaspoonful to the pint) should be offered by mouth at frequent intervals. Solid food should always be stopped, and it is usually necessary to reduce the quantity of milk or to stop it entirely for a day or two (see p. 116).

§ *What can be done to prevent infantile diarrhea?*

The sterilization of milk for infants is very important in this connection; it serves to prevent not only dysentery but other infections from reaching infants.

The careful protection of babies from adults with colds and coughs can not be overemphasized, for respiratory infections probably cause more diarrhea than any other single factor.

The following rules will serve particularly to protect against dysentery:

1. No grown person suffering from any kind of diarrhea should be allowed to come near the baby. In adults and older children dysentery may appear to be only a very mild diarrhea which may pass unnoticed. The failure to recognize these cases is responsible for many attacks of dysentery in children.

2. Mosquito nets should be used for the child's crib in the summer-time, since dysentery germs may be carried by flies.

3. The mother or nurse's hands should be thor-

oroughly washed with soap and water whenever she has been in contact with an individual suffering from any kind of diarrhea, or whenever she handles food for children.

Although dysentery may occur in children at any season, it is more likely to come during the warm weather. It is therefore of particular importance that these precautions be strictly followed in the summertime and in the warmer parts of the United States where the disease is always more frequent.

RHEUMATIC FEVER

¶ *What are the early signs of rheumatic fever in children?*

This disease is uncommon before the fifth year; it is seen most frequently in the more northerly parts of the United States, especially during the winter and spring months. It may begin in a number of different ways—with repeated attacks of sore throat, with chorea (St. Vitus dance, see p. 234), or with vague “growing pains”; at other times the first signs are undue shortness of breath after exertion. Rheumatic fever is an important disease, for unless checked, it may cause serious damage to the heart.

¶ *What can be done to protect children from this disease?*

Children who suffer from frequent sore throats should have their tonsils removed. The most important thing is to have the disease recognized in the early stages

before serious damage has been done. Such measures as periodic medical examinations are of the greatest value, not only in detecting this disease, but in determining others that develop insidiously. In particular, parents should not neglect such manifestations as fidgetiness and growing pains.

§ *Are all growing pains due to rheumatic fever?*

By no means. Growing pains may be due to a number of other causes, such as a focus of infection in the tonsils, the sinuses, or the teeth. In many instances they have no significance whatever. But it is only by paying attention to them that a serious cause can be discovered when it is present.

DEFICIENCY DISEASES

§ *What are deficiency diseases?*

They are conditions caused by the lack of some essential constituent of the diet. The three most important deficiency diseases of early life are scurvy, rickets, and nutritional anemia.

SCURVY

§ *What is scurvy and how is it produced?*

Scurvy is a disease affecting chiefly the bones and the blood vessels; it is produced by the prolonged use of a diet which is lacking in vitamin C. Certain foods like bread, cereals, and most of the prepared infant

foods do not contain this vitamin. It is very abundant in certain fruit juices, particularly in orange juice. Although it is present in fresh milk, it is destroyed by heating as in boiling or pasteurizing. It has also been largely destroyed in practically all canned milks.

Symptoms of scurvy are seldom seen until a diet lacking this vitamin has been continued for several months. Most cases of scurvy occur in infants under eighteen months of age who have been fed on milk and starchy foods and have not been given orange juice regularly (see p. 100).

§ *What symptoms are seen in an infant with scurvy?*

At first there is only indefinite and occasional soreness in the legs, so that the child cries out when handled. As this soreness becomes more severe the child is often thought to have rheumatism. The upper gums swell and are of a deep purple color. There may be bleeding from the gums or nose, or black-and-blue spots may be seen upon the legs. There is often swelling just above the ankles or just above or below the knees. The child grows pale, loses appetite and weight, and sleeps badly.

§ *What should be done when an infant shows signs of scurvy?*

Fresh fruit juice should at once be added to the diet; orange juice is the best. From two to three ounces should be given daily; one tablespoonful may be given five or six times a day about one hour before feeding. Quite as effective and less expensive is the

juice of fresh or canned tomatoes.* It should be strained and used in somewhat larger quantities than orange juice. As the symptoms improve the amount of the juice may be diminished. Pure vitamin C tablets are now available and may be prescribed by a physician either for the treatment or for the prevention of scurvy.

Properly treated, an infant with scurvy generally recovers promptly and completely. If not recognized, or untreated, scurvy may cause death.

RICKETS

¶ *What is rickets?*

Rickets is a deficiency disease occurring chiefly between the ages of four and eighteen months. It causes softening of the bones, which bend readily and produce deformities of the head, the chest, and the limbs. The muscles, too, are affected: they are flabby and the ligaments are relaxed; the abdomen is often enlarged. Children with this disease are usually late in walking.

The milk teeth are usually late in erupting and the disease in infancy may cause damage to the permanent teeth which is not evident until years later (see p. 210).

¶ *Under what conditions is rickets likely to occur?*

Two factors must be lacking in order that rickets may develop—direct sunlight and vitamin D. Either

* The juice poured off from canned tomatoes should be used rather than canned tomato juice; the latter contains condiments and a variety of other substances that may at times upset an infant's digestion.

one of these, when adequately supplied, will cure or prevent the disease.

Rickets usually develops in the winter months, when the sunlight is likely to be of poor quality. It is occasionally seen in nursing infants but is much more common in those who are artificially fed. Diets which are relatively poor in fats and high in carbohydrates, such as skimmed milk and some of the prepared infant foods (see p. 132), are the most likely to lead to rickets.

§ *How can rickets be prevented or cured?*

Direct sunbaths are impractical in cold weather and are not to be depended upon in cities, where the air is full of dust and smoke. It is generally safer to rely on some form of vitamin D given by mouth.

Cod liver oil is the most widely used form of vitamin D; one teaspoonful three times a day is an adequate dose.

Concentrated fish liver oils (percomorph liver oil, Navitol) are approximately 100 times as potent as cod liver oil and are required in correspondingly smaller doses (eight or ten drops once a day). These preparations are convenient to administer and are particularly useful in the case of premature infants who require unusually large doses (see p. 168). Viossterol and Drisdol are likewise standardized at 100 times the potency of cod liver oil and are effective agents against rickets; these preparations are unlike the fish oil products in that they contain no vitamin A, which must be supplied by other means (see p. 196)

when they are used. Many *cod liver oil concentrates* are also on the market. During the past few years various kinds of *milk fortified with vitamin D* have become available. These may be used to supply some but not all of the daily requirements of vitamin D. Irradiated fresh or evaporated milk can be counted on to supply about one-half the minimum daily requirement or one-third of the more generous "optimal" requirement; infants fed on this need be given only two teaspoonfuls of cod liver oil per day. Milk which has been reinforced by feeding vitamin D to the cows, or by adding it to the milk at the dairy, contains roughly twice as much as irradiated milk; it will supply the minimum daily requirement, but for an optimal intake one teaspoonful of cod liver oil should be given in addition.*

For the treatment of rickets, the doses mentioned above for prevention will suffice, but a more rapid cure can be obtained by the use of larger doses. This should be done only under the guidance of a physician.

A N E M I A

§ *What is anemia?*

Anemia is a condition in which the blood is poor both in coloring matter (hemoglobin) and in red cells.

* For convenience, vitamin D is measured in international units. The average infant requires a minimum of 600 units per day (the equivalent of 2 teaspoonfuls of cod liver oil) but it is safer to provide 900 units a day (3 teaspoonfuls of cod liver oil). The units provided by the various kinds of fortified milks and concentrated preparations are given on the label.

It is of frequent occurrence. Its most common causes in infants and young children are infections and improper feeding.

§ *What symptoms are seen in children suffering from anemia?*

Anemic children show marked pallor, which is especially noted in the lips and ears; they usually have poor circulation, tire easily, and suffer from cold hands and feet. They are often much below weight, gain very slowly, and are generally below par physically.

§ *What particular mistakes in feeding are likely to lead to anemia?*

The anemia that results from improper feeding (nutritional anemia) is due to a lack of iron in the diet. This may occur when an exclusive diet of milk is given for too long a period. Milk, although it is the best individual food for infants, does not supply enough iron for the body's needs beyond the first few months, and unless solid food is given or iron is supplied in some other form (such as beef juice or medicinal iron) anemia is likely to develop during the latter part of the first year. When infants are nursed exclusively or are given only the bottle for as long as fifteen months or more this anemia may become very severe. Lack of success in weaning a child from the bottle is the most common cause of a continued milk diet. An infant may refuse solid food indefinitely if he is allowed to take as much milk as he pleases.

Premature infants and those who have suffered from infections during infancy require relatively more iron and thus are particularly susceptible to anemia.

§ *How are these cases to be managed?*

The introduction of solid food in the diet of infants as has been described elsewhere (see p. 132) will usually prevent this condition from developing.

The inclusion of iron-containing foods, such as meat, egg, and green vegetables will serve to correct the condition once it has developed, but medicinal iron is usually needed as well.

ALLERGY

§ *What is allergy?*

It is an idiosyncrasy present in certain individuals which causes them to react in a peculiar way to some substance with which they come in contact.

It has been estimated that one individual in every seven persons in the United States is allergic to some one or more substances.

§ *What substances will cause allergic manifestations?*

The offending substance may be something that is taken by mouth, such as a food or drug; it may be something that is inhaled, such as a pollen, an animal dander, or some ingredient of dust; it may be some material that is brought in contact with the skin, and,

lastly, it may be a product of some microörganism or parasite that has invaded the body.

¶ *What types of allergic reaction are seen?*

There may be a breaking out of the skin in the form of *eczema* in some cases and of *hives* in others; there may be inflammation of the mucous membranes of the eyes, nose, and throat, causing itching, sneezing, and a watery discharge (*hay-fever*); the bronchial passages may be constricted, causing difficulty with breathing (*bronchial asthma*). These are the most common allergic manifestations. Exceptionally, there may be vomiting, diarrhea, and other types of allergic reaction.

¶ *Does the type of allergic reaction depend upon the path by which the offending substance reaches the body?*

This is often, but not invariably, the case. Material that is inhaled will usually produce a reaction in the respiratory tract—either hay-fever or asthma—but it sometimes produces a reaction in the skin. An offending substance that is eaten may produce any type of allergic reaction.

¶ *What types of allergic reaction are seen in children at different age periods?*

Eczema is seen particularly in infants; the tendency to this type of reaction is outgrown, and after the age of two it is only infrequently seen. Asthma is sometimes seen in infancy, and more commonly after the age of

three or four years. Most cases of asthma in childhood are associated with attacks of bronchitis; the tendency to such attacks often disappears at the age of puberty. Hay-fever may be encountered in infancy, but the tendency to this type of reaction usually develops later; it becomes more frequent with increasing age throughout life. A common sequence of events in an allergic individual is to suffer from eczema during infancy, to have asthma with attacks of bronchitis during later childhood, and to have hay-fever during adolescence and adult life. Hives (urticaria) show no predisposition to occur at any particular age.

¶ *How can one detect the agent that is causing an allergic reaction?*

In many instances a parent or nurse will make the observation that a reaction has followed the taking of a particular article of food, that a skin reaction has followed some new article of clothing, or that an attack of asthma has followed the use of a new pillow. In other cases, it may require expert detective work on the part of the parent and the doctor to discover the source of the trouble. *Skin tests*, performed by a doctor, will often give very helpful information. These tests are, however, not always to be relied on: a positive skin test may be obtained which has no significance at all, and, conversely, one sometimes obtains a negative skin reaction to a substance which is actually responsible for the difficulty. The final answer must be given by *elimination tests*; when the elimination of a particular substance from the food or envi-

ronment cures the symptoms and when they reappear upon its restoration, there can be no further doubt.

§ *What is the commonest mistake made in treating allergic children?*

Many children are harmed by unwise restriction of their diet, either because of some real or supposed allergy to important articles of food. The child may not get enough of some essential food that is needed for growth or he may develop some vitamin deficiency.

§ *How can this mistake be avoided?*

First by making quite sure that the suspected allergy is a real one, if necessary by repeated withdrawal from and restoration to the diet. Second, when it has become clear that some important food must be eliminated, one must be sure that adequate provision is made in other ways for the essential food requirements of the body.

In some instances, the elimination of a particular article of food is a simple matter; in others, it requires careful planning on the part of a physician.

§ *Can allergy be cured?*

The tendency to allergic reactions is inborn and often runs in families. Particular allergic manifestations are, however, often outgrown, notably eczema. The extent to which an idiosyncrasy may be outgrown seems to depend upon the nature of the offending substance. With certain foods, such as milk and eggs, a baby may be extremely hypersensitive at birth, yet in the course

of months or years, in which only minute quantities of these foods are given, he may gradually develop a tolerance and be able to consume them with impunity. In the case of shellfish, on the other hand, the idiosyncrasy often remains throughout life. With inhalants, such as the pollens, hypersensitiveness may gradually be ameliorated by graded courses of injections or it may gradually disappear spontaneously in the course of years, but unfortunately the reverse may also occur. An individual may become increasingly sensitive to one agent while losing his sensitivity to another.

ECZEMA

§ *How does eczema show itself in an infant?*

It begins as small red spots, most frequently upon the cheeks; gradually these fuse together and large inflamed areas may develop. The condition may involve the entire face and scalp, the diaper region, the extremities, and sometimes the greater part of the body. In some instances, it remains dry and scaly, and in other lesions are moist and tend to ooze. Itching is usually very marked and infants tend to scratch themselves.

Overweight, fat infants are likely to suffer more severely than others who may be of average size or even undernourished.

§ *What can be done to alleviate this condition?*

Although much benefit may be obtained from various ointments that may be prescribed by the physician,

the most important measures in controlling eczema are matters of nursing care. Irritation of the skin from clothing must be prevented; soap and water should not be allowed to touch the affected areas, which may be bathed with olive oil or mineral oil. Finger-nails should be cut extremely short to prevent scratching, and in severe cases it may be necessary to restrain the patient's arms by using pasteboard splints or by other means.

When eczema makes its appearance in an obese baby the diet should be reduced and the attempt made to hold the weight stationary until it is no longer excessive for the age. A weight that is more than 15 per cent above the average curve shown on page 310 may be regarded as excessive. With breast-fed infants the food may be curtailed by shortening the nursing time. With artificially fed infants one may reduce the food as a whole, but it is usually preferable to reduce it by eliminating the sugar in the formula. The reactivity of the skin is often reduced by decreasing the sugar and increasing the fat in the formula; one may try the effect of feeding top milk or a mixture consisting of half milk and half cream (20 per cent cream) for a few days. Not all infants will tolerate this, but most of them will do so; if the infant shows a tendency to vomit or seems not to be thriving it may be discontinued. In older infants on a mixed diet the use of starchy foods should be avoided and more fruit given.

In infants with eczema who are underweight such changes in the food should not be undertaken. It is

important to see that the diet is adequate in all respects.

§ *Can eczema be cured by eliminating from the diet some food to which the infant has an idiosyncrasy?*

In only a small proportion of the cases is this true. At times the elimination of egg, milk, or some other food to which the infant is sensitive will clear up or greatly improve the condition, but more frequently no benefit follows the elimination even of a food which gives a positive skin test. There seem to be other factors responsible in part for causing eczema which are still unknown at the present time, and for this reason one must depend largely upon the non-specific measures mentioned above.

URTICARIA (HIVES)

§ *What does urticaria look like?*

The typical appearance is like that of a fresh mosquito bite. There is an elevated red spot of variable size, which often has a pale center; itching is usually intense. These lesions may appear anywhere on the body.

§ *What should be done to control urticaria?*

If the itching is severe and the lesions are numerous, local applications of ice or of calamine lotion may be of some help. The important thing is to find the cause of the condition in order to prevent future attacks. Some food or medicine is nearly always responsible.

Almost any article of food may at times cause urticaria, but strawberries, various fish, and shellfish are particularly common offenders.

HAY-FEVER

§ *What are the symptoms of hay-fever?*

They are similar to those of a common cold, but frequently there is marked itching of the eyes or of the throat; the watery discharge from the nose which, with a cold, rarely lasts more than a day or two, may continue for a long period in cases of hay-fever.

§ *What can be done to discover the cause of the hay-fever?*

If the condition develops only at some particular season of the year, some pollen is almost certainly responsible. By means of skin tests and a knowledge of the pollens in the air at the particular season and locality the physician can readily identify the offender. More difficult are cases in which the symptoms occur irregularly or, as is sometimes the case, almost continuously. Such cases are often referred to as "non-seasonal" hay-fever or as "allergic rhinitis." The solution of these problems may demand considerable detective work on the part of the mother as well as of the physician. Skin tests may shed light on the nature of the offending substance, but to find it in the home and eliminate it is another matter. Articles of furniture, rugs, upholstery and hangings, bedding and clothing may contain some animal or vegetable

product that is causing the trouble; some toy is often responsible. Other instances can be traced to the mother's cosmetics, and in many cases articles of food are the offenders.

An excellent method of locating the source of allergic rhinitis in the home is to put the child in a room by himself. The room should be thoroughly cleaned and should contain no upholstery, rugs or hangings. A pillow on the bed may be dispensed with, and the mattress and blankets used should be well covered by sheets. If residence in such a room clears up the condition the room can gradually be furnished—one article at a time—from the child's usual nursery until either its various furnishings are exonerated or one of them is convicted.

§ *What can be done to relieve hay-fever?*

The physician can prescribe drugs that will provide some local relief. The use of graded injections of the offending substance is occasionally followed by striking success, but more often the result is disappointing. In the seasonal cases removal of the child to a pollen-free area may solve the problem. If this is impracticable it is possible to equip rooms with pollen filters which will give relief at night at least. Filters that can be attached to the nose directly are also available and can be used in severe cases.

Overeating and the use of a high carbohydrate diet should be avoided. Fruits should be used for desserts rather than puddings and pastries.

ASTHMA

§ *What can be done for a child who is susceptible to asthma?*

If the characteristic wheezing in the chest occurs only in association with colds and bronchitis one may be reasonably sure that the asthma is caused by the product of some bacterial agent. It is of the greatest importance to protect such children from colds and sore throats. Once a cold is acquired, medical advice should be promptly sought. Something can be done to check the bacterial complications of a cold by means of medication, and it is far easier for the physician to control a beginning attack of asthma than one which is well developed.

In cases when the asthmatic attacks are not associated with a respiratory infection it is necessary to employ the methods of detection mentioned under hay-fever in order to locate the cause of the asthma. If this can be discovered and eliminated, one need have no further concern; if its elimination is impractical, as may be the case with pollen asthma, a course of injections may be tried.

§ *What can be done to ameliorate an attack of asthma?*

The medical treatment of the asthmatic attack is a matter for the physician, but something can also be done by the mother or nurse. Overeating and, particularly, high carbohydrate meals seem to make asthma

worse. Overexertion and excitement should also be avoided. In some cases of asthma emotional difficulties play a part: they do not cause the attacks, but they may make the symptoms more severe. An asthmatic child may profit from a consideration of his daily environment along the lines discussed elsewhere (see section on Behavior Problems).

ACCIDENTS AND OTHER EMERGENCIES

HOW TO PREVENT ACCIDENTS

¶ *What can be done to prevent accidents in infants and children?*

With infants the most frequent accidents are burns and inhalation of powders. A baby should never be given a can of talcum powder to play with. Burns from giving too hot a bath may be prevented if one forms the habit of immersing one's arm up to the elbow in the baby's tub before putting him into it. Every year there are many fatalities in infants who are allowed to sleep in the same bed with an adult. During sleep the adult rolls over on the child and smothers it. This is one important reason why an infant should never be allowed to sleep with the mother.

The greatest danger of accidents is with children who are just old enough to get about by themselves.

Before a child reaches the age of two it is well to give some thought to making the home a safe place for him. One should make certain that the medicine shelf is well out of reach, and also such articles as kerosene, ammonia, lye, and insecticides. Matches, in particular, must be kept out of range. Young children should be kept out of the kitchen as far as possible. If a child's presence there is unavoidable, he should be confined in a play pen as far from the stove as possible and out of reach of knives and other sharp utensils. Guards should be put at windows and at the head of a stairway down which a child may fall.

The careful selection of a child's toys (see p. 32) may serve to prevent many aspiration accidents and cases of lead poisoning. The avoidance of nuts in a child's diet, particles of which are often aspirated, has been mentioned elsewhere; bony fish are an obvious source of danger.

BLISTERS

¶ *What should be done for blisters?*

If the skin is unbroken it is better to leave it so, to avoid infection. The area should be protected from further injury by a piece of gauze covered with adhesive. If the blister has ruptured the raw surface should be thoroughly cleaned with soap and water; a mild antiseptic powder, such as aristol, may then be applied and the area covered with a sterile dressing.

BURNS

¶ *How should a burn be treated?*

Clothing should be removed from the burned area; if this is difficult it should be cut away. Adherent bits of clothing or dirt should be soaked off with warm compresses. An antiseptic ointment such as sulfadiazine ointment should be freely applied to all raw areas, which may then be covered with sterile dressings. Unruptured blisters are best left intact.

CUTS

¶ *How should cuts be treated?*

The first essential is to remove dirt. This may be done by washing carefully with soap and water. Incised wounds should be allowed to bleed for a time, for this helps to wash out dirt. Bleeding may then be controlled by local pressure; only if it is very severe is pressure over an artery needed.* Raw scraped areas may be treated with an antiseptic powder such as aristol powder and a sterile dressing applied.

The possibility of developing tetanus (lockjaw) must be considered in punctured, deep wounds of all kinds, in those caused by gunpowder, and in those contaminated with dirt from agricultural regions. Unless a child has been protected by injections of tetanus toxoid (see p. 275) it may be advisable to give him tetanus antitoxin. In any questionable case a physician should be consulted.

* Directions for this are found in all first-aid manuals.

SPLINTERS

¶ *How should splinters be removed?*

The area should first be thoroughly scrubbed with soap and water. If the splinter can be grasped with sterile forceps (tweezers) it can usually be removed intact. If it can not be reached by this means one should break the skin over the splinter with a sterile needle and expose it. Once this is done the splinter can often be removed by sliding the side of the needle over the exposed area, using moderate pressure. After the splinter is removed, a second scrubbing with soap and water is indicated.

NOSE BLEED

¶ *How should a nose bleed be checked?*

The child should lie flat. The bleeding nostril should be compressed and a cloth soaked in cold water applied to the bridge of the nose. It does not matter if the child swallows a little blood. Blowing the nose should be avoided for some hours, for this may start the bleeding again. If nose bleeds are frequent and start without apparent cause a physician should be consulted.

POISONS

¶ *What should be done if a child has swallowed a poison?*

If the poison swallowed is a corrosive, such as lye, ammonia, or an acid, the first step is to give lots of water

to drink. Bicarbonate of soda should be given to neutralize an acid, and vinegar for ammonia or lye.

In all cases vomiting should be induced as soon as possible. If an emetic such as syrup of ipecac is available this should be given in doses of one to two teaspoonfuls. Vomiting can often be induced by inserting the finger down the throat or by having the child drink a large amount of soapy water. As soon as vomiting has occurred, more water should be taken and vomiting should be induced again—two or three times.

One of the very best antidotes that can be used for nearly all poisons is a variety of adsorbent charcoal known as Norite. This material may be kept on hand in the first-aid kit. It should be mixed with water to form a thick soup and drunk freely. Vomiting may then be induced and more of the charcoal soup drunk. It does not matter if some of the charcoal remains in the stomach. The poison remains attached to the charcoal, which is eventually passed by the bowel.

Other antidotes for most poisons are listed in most first-aid booklets.

FIRST-AID KIT

§ *What is a suitable first-aid kit for domestic use?*

It should contain the following articles: roll bandages, adhesive, gauze dressings (the combined gauze patches covered with adhesive—Band-aids, etc., are particularly convenient for small wounds), scissors and a pair of tweezers, a bland antiseptic ointment, such as zinc

oxide or sulfadiazine ointment, and an antiseptic powder that may be dusted on very shallow abrasions, such as aristol or sulfadiazine powder. A first-aid booklet may conveniently be kept here. A bottle of syrup of ipecac and a can of adsorbent charcoal may prove very useful in case a poison has been swallowed.

FOREIGN BODIES

§ *What should be done if a foreign body has been swallowed?*

First, be sure that the object has actually been swallowed. Often needless alarm is allayed by finding in the child's crib or elsewhere the thing supposed to have been swallowed. Next, examine the throat with the finger. If the foreign body has lodged there, remove it. If it has passed from the throat it has usually gone into the stomach. The child's stools should be examined daily to see if the foreign body passes the bowel.

§ *What further treatment is needed?*

The child should be given plenty of dry food, like bread, potato, cereal, etc., but under no circumstances either an emetic or a cathartic. An infant may have the usual food.

Not only smooth objects such as buttons, coins, and fruit stones, but nearly always those with sharp angles, and even open safety pins, readily pass the bowel without doing any injury.

§ *What harm would a cathartic do?*

It is likely to hurry the foreign body too rapidly through the intestine and in this way do harm; otherwise it becomes coated with fecal matter and passes the intestine usually without doing injury.

§ *How long a time is required for a foreign body to pass the bowel?*

In most cases but five or six days, occasionally two or three weeks, and sometimes even longer.

§ *What should be done if a child gets a foreign body into the ear?*

Unless this can easily be removed with the fingers it should not be meddled with, for it is likely to be pushed farther into the ear. The child should be taken to a physician.

§ *What should be done if there is a foreign body in the nose?*

The child should blow his nose forcibly while the empty nostril is compressed. Unless this removes it a physician should be called. Meddlesome interference is always harmful.

§ *What should be done for a foreign body in the eye?*

The eye should be washed with a solution of boric acid as recommended on page 14. If the foreign body can be seen it may be gently touched with a piece of soft linen or with a swab made by twisting a small

piece of absorbent cotton. Unless this removes it at once, the child should be taken to a physician without delay.

HICCOUGH

§ *What is the cause of hiccough?*

This is usually caused by gas on the stomach or by food that is too hot or too cold. At times it seems to start for no reason at all.

§ *How should a baby with hiccough be treated?*

The measures to prevent air swallowing (see p. 108) should be carefully observed: the nipples, the position during feeding, and "bubbling the baby" after feeding. When attention is given to these details, attacks of hiccoughing frequently disappear. The best procedure to stop an attack is to give the baby some warm water in a bottle.

§ *What should be done for hiccough in an older child?*

The best plan is to take some food or fluid. The act of swallowing should be postponed until the hiccough is about due. Even when no food or fluid is available, going through the motion of swallowing will often stop the attack.

CONVULSIONS

§ *What are convulsions?*

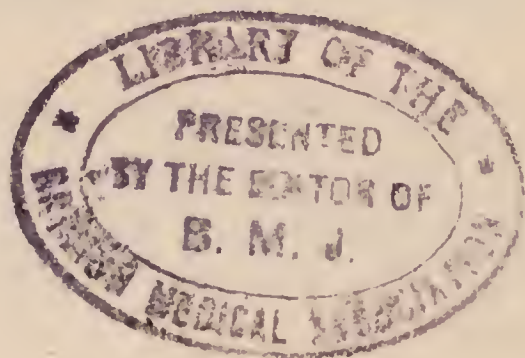
They are attacks characterized by stiffening and then rhythmical twitchings of the muscles of a part or all

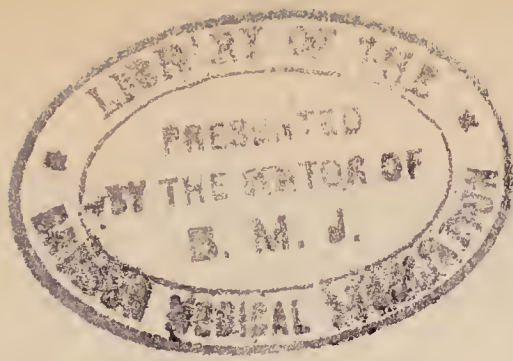
of the body; they are usually accompanied by loss of consciousness. They are more common in infants than in older subjects.

§ *What should be done for a child in convulsions before a doctor arrives?*

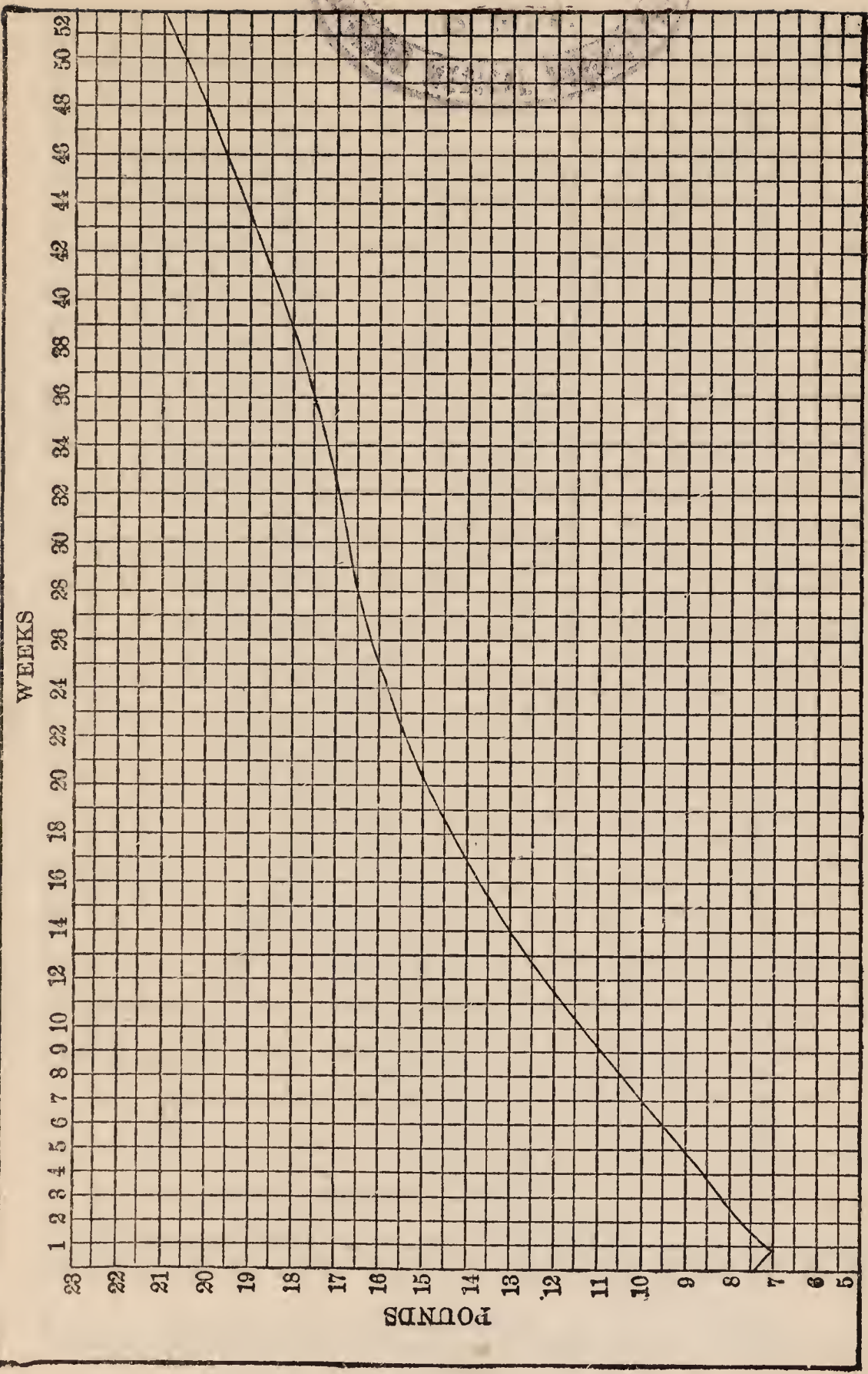
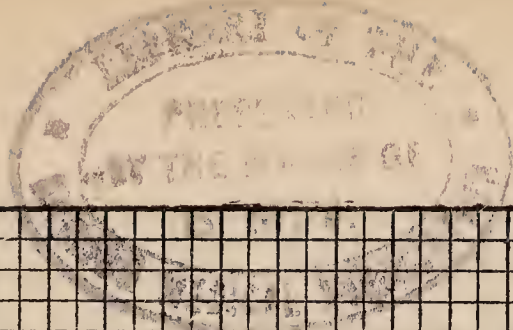
In the first place it should be known that an attack of convulsions is seldom in itself a dangerous thing. In the great majority of cases convulsions last but a few minutes, even without any treatment; usually there is too much rather than too little treatment given.

The child should be kept perfectly quiet with cold applied to the head; the entire body may be wrapped in a large towel which has been wrung out of warm water. If the rhythmic movements involve the jaw muscles one may insert the corner of a towel in the child's mouth to keep him from biting his tongue, provided he has teeth.

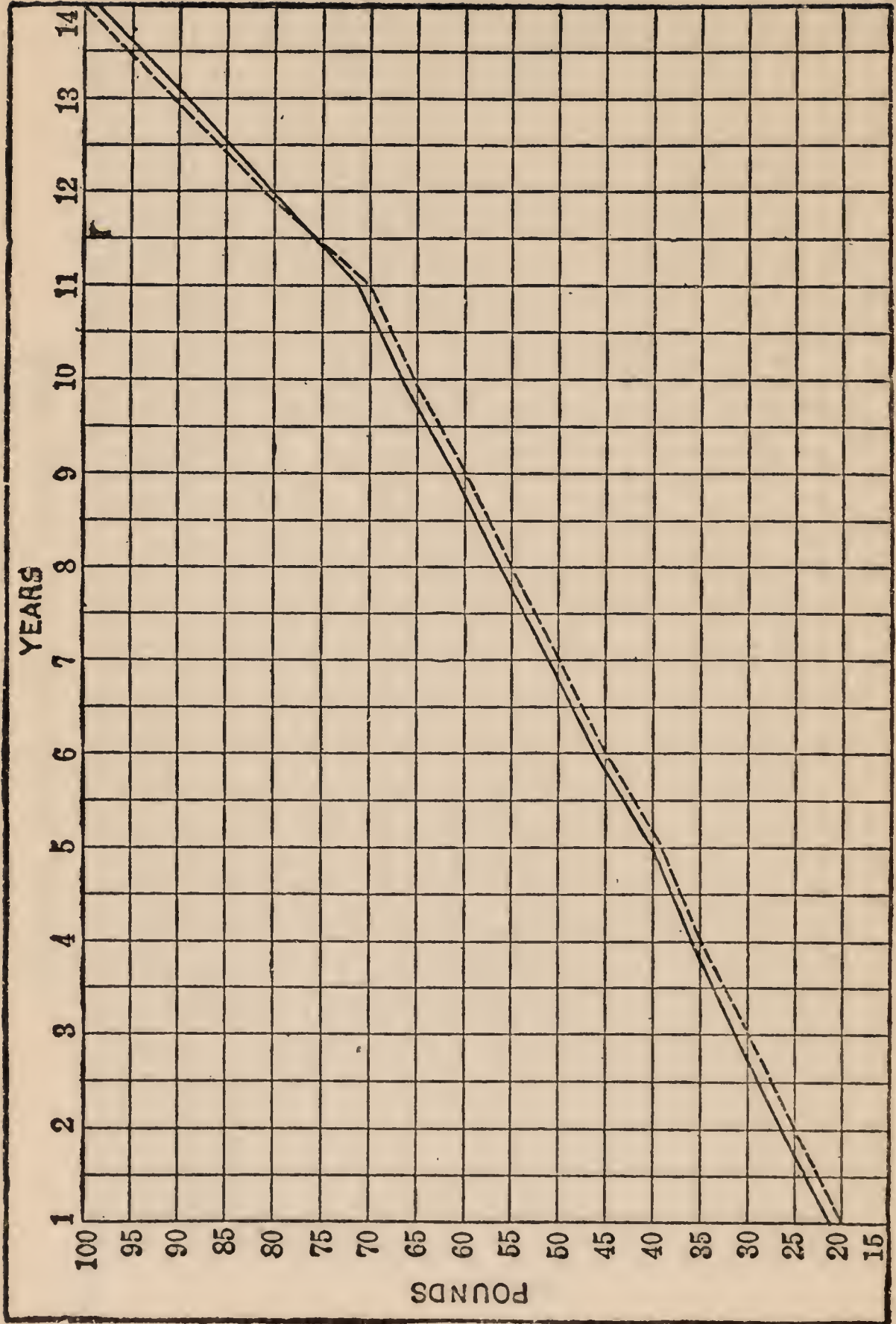




APPENDIX

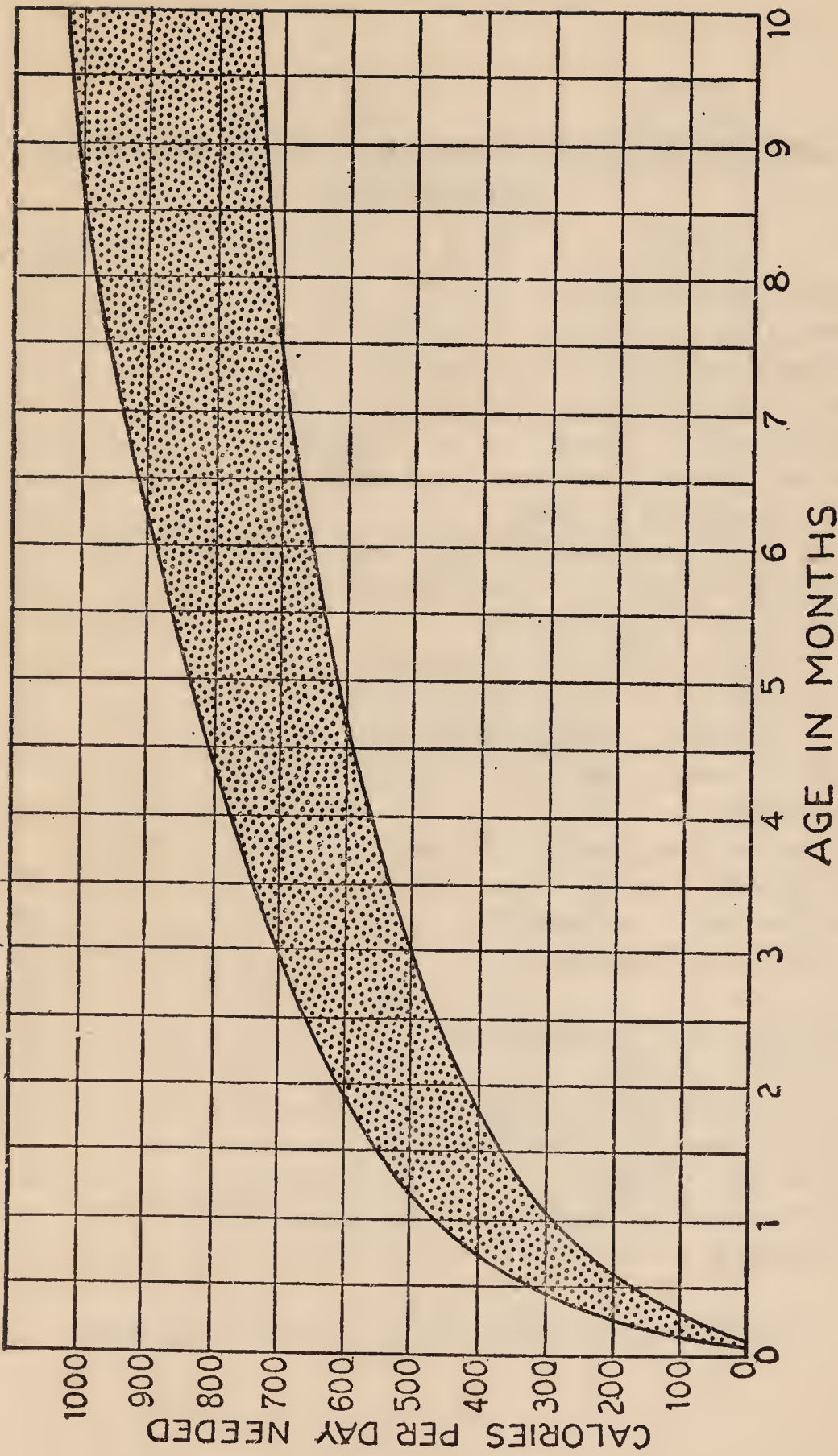


WEIGHT CHART FOR THE FIRST YEAR
The curved line indicates the average rate of gain.



WEIGHT CHART, ONE TO FOURTEEN YEARS

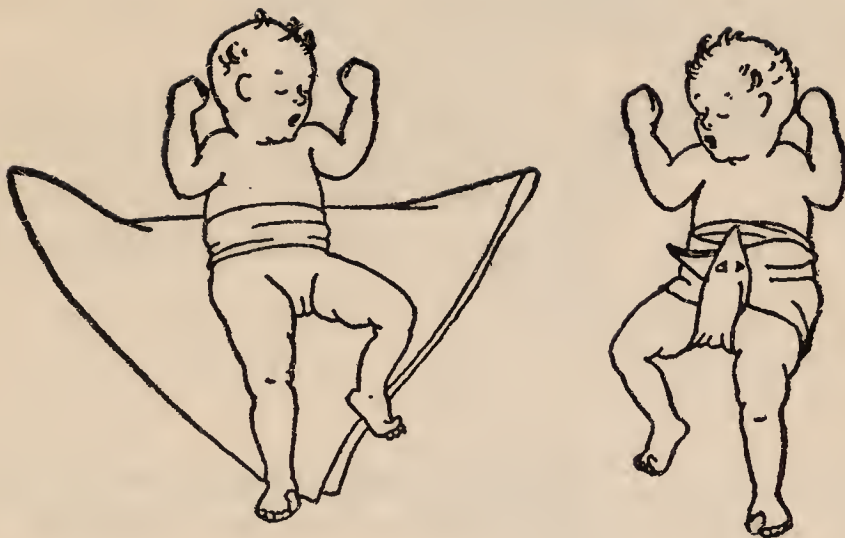
The upper line indicates the average rate of gain for boys; the lower (dotted) line, that for girls.



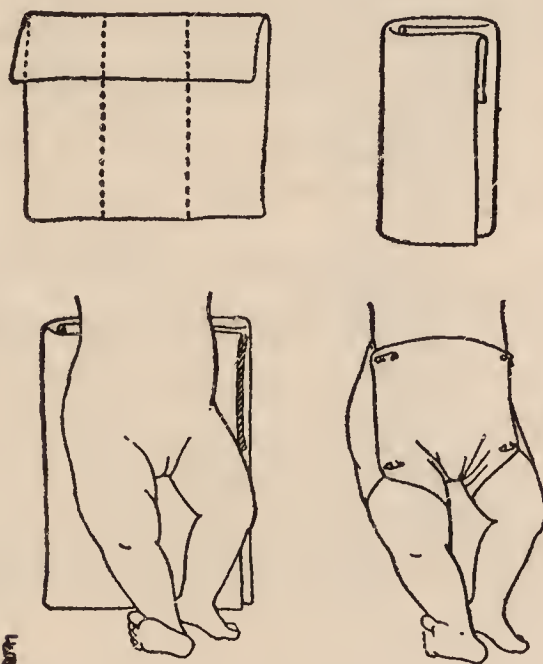
CALORIC REQUIREMENTS OF INFANTS

APPROXIMATE CALORIC VALUE OF DIFFERENT FOODSTUFFS

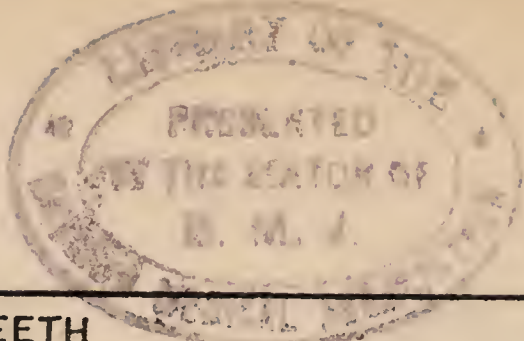
<i>Food</i>	<i>Calories</i>
Breast milk, 1 ounce	20
Cow's milk, 1 ounce	20
Skimmed milk (1% fat), 1 ounce	14
Buttermilk (fat-free), 1 ounce	10
Protein milk, 1 ounce	18
Dry whole milk powder, 1 level tablespoonful.....	40
Evaporated milk, 1 ounce	45
Cane sugar (granulated), 1 level tablespoonful.....	60
Milk sugar (lactose), 1 level tablespoonful.....	40
Corn syrup, 1 tablespoonful	60
Malt soup extract, 1 tablespoonful.....	50
Dextrimaltose, 1 level tablespoonful	40
Flour (barley), 1 level tablespoonful	33
Cooked cereal (cooked with milk 1 to 6), 1 table- spoonful	28
Cooked cereal (cooked with water 1 to 6), 1 table- spoonful	18
Cod-liver oil, 1 teaspoonful	32
Orange juice, 1 ounce	15
Egg, 1	85
Scraped beef, 1 tablespoonful	25
Beef juice, 1 ounce	12
Spinach (strained), 1 tablespoonful	15
Carrots (mashed), 1 tablespoonful	6
Zwieback, 1 piece	34
Infant cereals (Pablum, Cerevim, etc.), 1 level table- spoonful	9



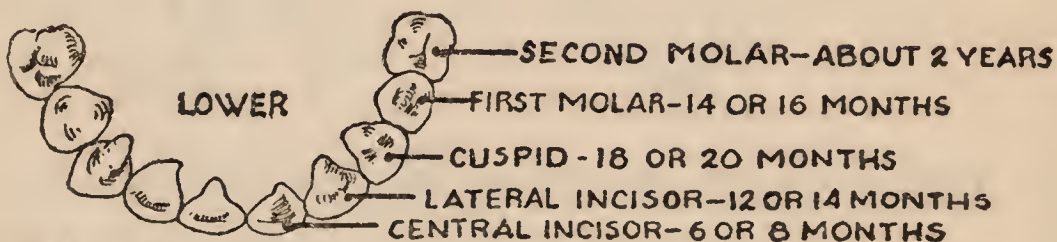
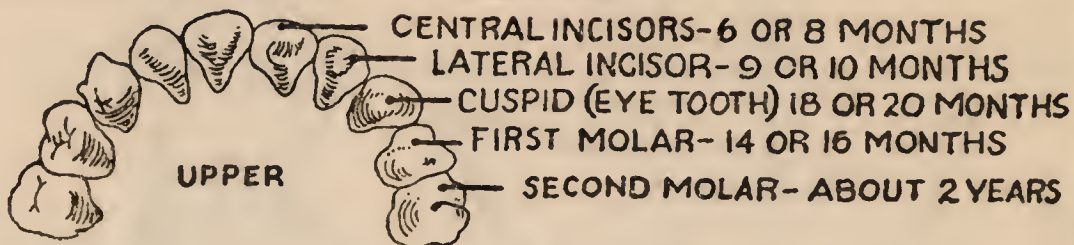
APPLICATION OF TRIANGULAR DIAPER



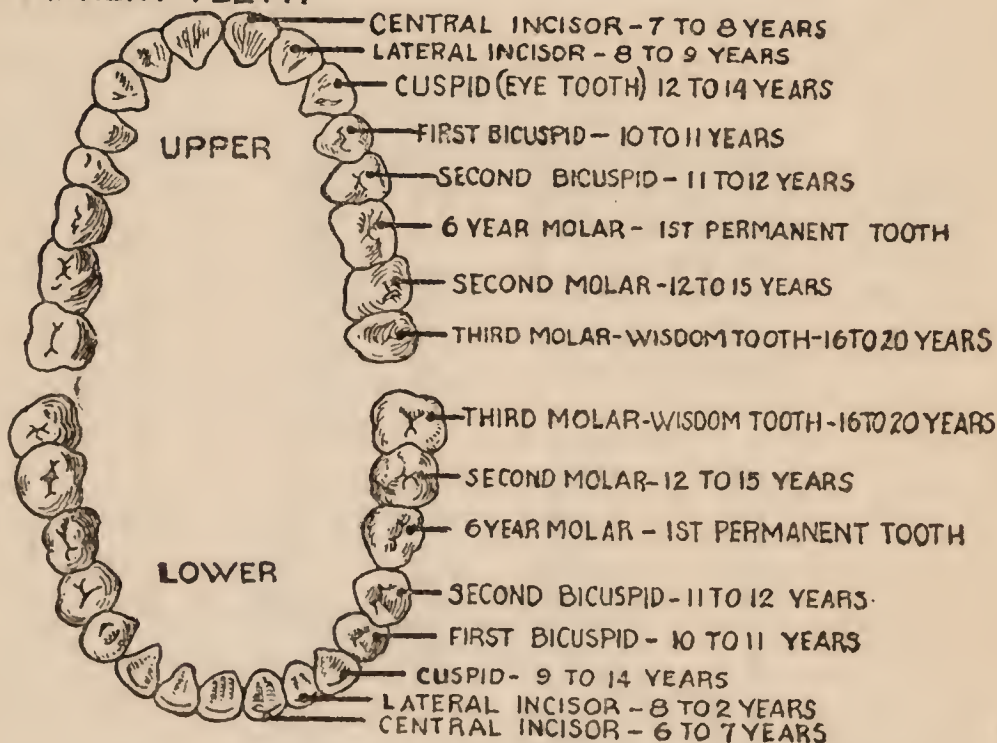
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DECIDUOUS TEETH



PERMANENT TEETH



DECIDUOUS AND PERMANENT DENTITION



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